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VOL. XLVIII

April, 1920

NUMBER 4

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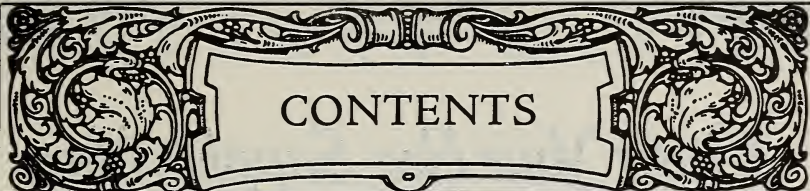
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THE A. I. ROOT COMPANY, Publishers, Medina, Ohio

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NOW is the time to check up on your hives and accessories to make sure that everything is complete and in perfect condition for the coming season. Our complete line of Bee Supplies includes everything needed by the modern Beekeeper. Besides our own exclusive articles, we are distributors for the famous Lewis Beeware line, and dealers in Root's Extractors and Smokers, and Dadant's Foundations. Orders placed now can be filled promptly. Prices on many articles are sure to advance within the next few months. Send for our large 1920 Catalog today.

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WE pay you the highest market price for rendered wax, less 5 cents per pound rendering charge. Our special hydraulic steam wax press gets the very last drop of wax from old combs and cappings assuring you maximum profit on them. Write for full particulars.

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SEND us samples of your honey and we will quote you a price equal or better than that of any other concern. We buy and sell both comb and extracted honey. Cash remitted in full the same day shipment is received.

Send for Our Large New 1920 Catalog

THIS new catalog contains over 40 pages of every variety of Beekeepers' Supplies, including all the latest and most improved devices. It is really a valuable reference book on beekeeping accessories. :- :- :- :- :- :- :-

THE FRED W. MUTH CO.

"THE BUSY BEE MEN"

CINCINNATI, O

BEE SWAX WANTED

We require approximately 50 tons of beeswax during the next three months, to take care of the enormous demand for SUPERIOR FOUNDATION. We are paying highest cash prices, and an extra allowance of several cents per pound when exchanged for foundation, bee supplies, or honey cans. Write for prices and shipping tags, stating quantity.

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Get our prices on your foundation requirements for the season. We maintain the same high quality in every pound we manufacture. SUPERIOR FOUNDATION assures SUPERIOR RESULTS.

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We carry a complete stock of bee supplies and honey cans, and can fill your entire order. Prices on request.

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Order your supplies early, so as to have everything ready for the honey flow, and save money by taking advantage of the early order cash discount. Send for our catalog--better still, send us a list of your supplies and we will be pleased to quote you.

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2146 CENTRAL AVE.

CINCINNATI, OHIO

HONEY MARKETS

There has been little change in the honey market during the last month, altho there is a pronounced inactivity just at this time, March 20. The quotations below tell the situation.

U. S. Government Market Reports.

HONEY ARRIVALS, MARCH 1-15.

MEDINA, O.—1,100 pounds from Illinois, 40, 800 pounds from New Mexico.

(Note: Arrivals include receipts during preceding 2 weeks, prices are for March 15 unless otherwise stated.)

SHIPPING POINT INFORMATION, MARCH 15.

LOS ANGELES, CALIF.—Demand and movement slightly improving, market steady, little change in prices. Carloads f. o. b.: Extracted, white orange blossom 18c; white sage, supplies very light, mostly 18c; extra light amber sage and light amber sage 17-17½c; light amber alfalfa, supplies very light, 15½c. Beeswax, demand and movement good, market strong, little change in prices, 1 c. l. lots 40-42c. The generally dull market since the first of year shows better inquiry and some signs of recovery.

SAN FRANCISCO, CALIF.—Supplies very light, demand and movement very slow. Cash to producers: Light amber alfalfa 14-14½c, white orange blossom, supplies practically exhausted, 16c. Beeswax, supplies very light, 38-40c. The crop outlook in California this year is very unpromising, due to lack of rainfall.

BOSTON.—Supplies light, demand very limited, market dull. Sales by jobbers to grocers: Comb, New York and Vermont, best 33-37c per section, some light sections low as 29c. Extracted, California, light amber in 60-lb. cans 23c. Beeswax, supplies very light, no sales.

CHICAGO.—No carlot arrivals, supplies liberal, demand and movement slow, market steady. Sales to jobbers: Extracted, Idaho, Colorado, California, and Montana, white 18-20c, light amber 18c, dark amber 17c. Comb: No. 1, 24-section cases \$6.75-7.00. Beeswax: Receipts moderate, supplies moderate, demand and movement moderate, market steady. Sales to jobbers: California, Idaho, Montana, Wisconsin, and Minnesota, light 40-45c, dark 34-40c.

CLEVELAND.—Demand and movement moderate, market weak. Sales to jobbers: Extracted, Western 60-lb. cans, white clover 19-20c, light amber 17-19c, white sage 21-23c. Dealers report offerings liberal with only fair moderate demand.

DENVER.—Since last report 12,200 lbs. extracted arrived. Supplies light, demand and movement moderate, market steady, no change in prices. Sales to jobbers: Comb, 24-section cases, No. 1, \$6.75; No. 2, \$6.30. Extracted: White 18½, light amber 17½c.

KANSAS CITY.—Supplies cleaning up, demand and movement good, market firm. Sales to jobbers: Comb, per 24-section flat case, Missouri, light \$8.50-9.00, California and Colorado, alfalfa light \$8.00. Extracted, California and Colorado, light amber 20-23c; mostly 22-23c per lb.

MINNEAPOLIS.—Supplies liberal, demand moderate for extracted, demand limited for comb, market steady. Sales direct to retailers: Comb, Western, No. 1 white, 24-section cases mostly \$7.50, few \$7.25. Extracted: Western, in 60-lb. cans, white 22c, light amber 20-21c.

NEW YORK.—No arrivals since last report. Practically no demand or movement, market very dull and weak. Sales to jobbers: Extracted, domestic supplies liberal, California, light amber alfalfa 14-16c, white orange blossom 17½-18c, amber sage 16-17c, New York sweet clover 16-17c. Beeswax: No arrivals since last report, supplies liberal, demand and movement very slow, market dull and weak. Sales to jobbers: Ohio, light mostly 40c, dark mostly 38c.

ST. LOUIS.—Supplies moderate, demand and movement moderate, market steady. Sales to jobbers: Extracted, Southern, in cans light amber 14-15c, dark 13-14c. Comb, clover \$7.00, light amber \$5.50-6.50 per 24-section case. Beeswax: 39c per lb.

ST. PAUL.—Supplies moderate, demand and

movement limited, market steady. Sales direct to retailers: Comb, Western, No. 1, white, 24-section case \$7.25-7.50. Extracted, too few sales to establish market.

CINCINNATI.—No arrivals, practically no demand or movement, no jobbing sales reported. Beeswax, demand moderate, movement limited, market dull. Sales to jobbers: Average yellow 45-48c per lb.

[The market reporters of the large cities were asked by the Government officials to state their opinions as to the reasons for the present dullness in the honey market. The reasons generally given are as follows: The large amounts carried over from last year, the increased ease of obtaining sugar, the lack of the usual amount of export business, the high prices, and the liberal offer of Cuban honey at low prices.—Editor Gleanings.]

Special Foreign Quotations.

LIVERPOOL.—During the past month the honey market has been very slow, only retail sales being made. 130 barrels Chilean Pile No. 1 at 16-17c per lb; Pile No. 2 at 14-15c per pound. Other kinds are retailing at late rates. The beeswax market is also quiet. The value in American currency still remains about the same, 34-35c per pound.

Liverpool, England, Feb. 28. Taylor & Co.

Condition of Bees and Honey Prospects.

The following are the opinions of actual honey-producers thruout the country received during the last few days:

ARIZONA.—Bees wintered nicely, 10 per cent lost. Condition of colonies about normal. Condition of honey plants better than usual. Crop prospects are good.—W. I. Lively.

BRITISH COLUMBIA.—Bees wintered well, about 10 per cent lost. Condition of colonies very good. Condition of honey plants good. Crop prospects good.—W. J. Sheppard.

CALIFORNIA.—Bees wintered rather poorly, 10 to 30 per cent being lost. Present condition of colonies about normal. In northern California outlook is not promising; in southern California, normal with three more inches of rain.—A. E. Lusher.

CALIFORNIA.—Honey prospects are not bright. If we could have 5 to 6 inches more of rainfall, we might get half of a crop. There is no old stock on hand. Comb honey is bringing 45c retail.—M. H. Mendleson.

SOUTHERN CALIFORNIA.—Bees wintered fairly well, 20 per cent lost. Condition of colonies a little below normal. Honey plants in fair condition. Prospects of one-half a crop.—L. L. Andrews.

COLORADO.—All reports are very favorable in regard to the wintering of bees, the loss being less than five per cent. Present condition of colonies is as good as usual. Honey plants are in good condition; we should have a good crop.—J. A. Green.

FLORIDA.—Bees wintered not as well as usual. Present condition of colonies not as good as usual at this time of year. Early orange bloom frozen, maybe some later. The woods are so burned by cattle men that the gallberry is badly injured; also saw palmetto, to some extent. Crop prospect is not as good as usual.—Ward Lamkin.

FLORIDA.—Bees wintered poorly, 40 per cent lost. Condition of honey plants good. Crop prospects very good.—C. H. Clute.

IDAHO.—All reports good, loss 2 per cent. Condition of honey plants normal. Crop prospects appear good. E. F. Atwater.

ILLINOIS.—There will be at least a 25 per cent loss of colonies in wintering. Bees that were neglected will be below the normal condition for season. I fear the clover is badly killed and that we shall not get more than a half of a white honey crop.—A. L. Kildow.

INDIANA.—Bees wintered in cellar O. K.; outside bees probably suffer large losses and in very poor condition compared with last year. Crop prospects poor. No clover in sight.—E. S. Miller.

KANSAS.—Bees wintered very well, and colo-

nies are in good condition. Honey plants are in good condition, and crop prospects in general are good.—A. D. Raffington.

MARYLAND.—Bees wintered fairly well, 25 per cent being lost. Condition of colonies poorer than usual. Condition of honey plants is good. Crop prospects normal.—S. G. Crocker.

MASSACHUSETTS.—Too early in the spring to tell much about conditions, as there is so much snow that only the tops of the fence posts are yet in sight, so I am afraid many colonies will be lost. Honey plants will probably get a grand start, and we should get a good crop of honey.—O. M. Smith.

MINNESOTA.—Bees wintered poorly, about 25 per cent being lost. Present condition of colonies compared with the usual condition is very poor. Honey plants are in very good condition. Crop prospects are very good.—Chas. D. Blaker.

MISSOURI.—Bees wintered fairly well, three to five per cent being lost. Present condition of colonies very good for this time of year. Honey plants are in good condition, and crop prospects are good.—J. W. Romberger.

NEBRASKA.—Bees did not winter very well, about 33 per cent being lost. Condition of colonies unusually poor. Honey plants are in good condition and crop prospects are good.—F. J. Harris.

NEW JERSEY.—Too early to give an intelligent report.—Elmer G. Carr.

NEW YORK.—Bees wintered fairly well, about 25 per cent lost. Present condition of colonies poorer than usual. Honey plants are in good condition, and crop prospects good.—George H. Rea.

NEW YORK.—Bees have wintered well. Colonies are in pretty good condition. Condition of honey plants extra good. Crop prospect are good.—F. W. Lesser.

NEW YORK.—Bees wintered well in the cellar but very poorly outdoors, about 50 per cent being lost. Present condition of colonies is much poorer than usual. Condition of honey plants is good, and crop prospects are good. Adams & Myers.

OHIO.—Bees well protected have wintered fairly well; in unpacked hives nearly 50 per cent are lost. Condition of colonies very poor. Honey plants are in good condition. Crop prospects are very good.—Fred Leininger & Son.

OKLAHOMA.—Bees wintered only fairly, 10 per cent being lost. Present condition of colonies normal. Condition of honey plants is poor. Crop prospects are good.—C. F. Stiles.

PENNSYLVANIA.—Several beemen report 40 to 60 per cent loss in outdoor-wintered bees; some poor cellar wintering on account of poor stores.—Harry W. Beaver.

EAST TEXAS.—Winter losses greater than ever known before, from too much rain last fall, and lack of feeding. Honey plants are promising.—T. A. Bowden.

LOWER RIO GRANDE VALLEY, TEXAS.—Bees wintered well, only 10 per cent being lost. Honey plants are in good condition. Crop prospects very good.—J. Lynn Stephenson.

TEXAS.—Bees wintered very well. Crop prospects good.—J. N. Mayes.

UTAH.—Bees wintered normally, the loss of colonies being from 4 to 10 per cent. Present condition of colonies normal for season. Condition of honey plants good, and crop prospects are normal.—M. A. Gill.

WASHINGTON.—Bees along the coast wintered as well as usual; but east of mountains there will be a big loss. Crop prospects look good.—Geo. W. B. Saxton.

WISCONSIN.—Bees have wintered very well. Colonies are in much better condition than at same time last year. Honey plants are in fine condition. Beekeepers expect large crop.—H. F. Wilson.

Advertisements Received too Late to Classify.

FOR SALE.—15 new 4 x 5 x 1 1/2 comb-honey supers. Carver R. Smith, N. Manchester, Ind.

FOR SALE.—10-acre fruit ranch in the heart of irrigated district near Santa Fe railroad. Alfalfa and sweet-clover bee pastures. Additional land adjoining for farming can be purchased. 100 colonies of bees, no disease. Seven-room modern-built house. Good roads, church, and school. Will sell or exchange. Platio Apiaries, Springer, New Mexico.

FOR SALE.—One Todd check protector. Limit \$500. Reasonable price. H. F. Simons, 5829 Indiana Ave., Chicago, Ills.

FOR SALE.—My three-banded Italians in brand-new Root ten-frame hives, at \$12.00 per colony. They are dirt cheap.

Theodore N. Ross, Nashville, N. C.

FOR SALE.—62 Buckeye hives, slightly used, freshly painted, white, complete, except frames, \$4.10 each f. o. b. Ashtabula, Ohio. E. G. Baldwin, c o Griswold Greenhouse Co., Ashtabula, Ohio.

FOR SALE.—April delivery by express in 3-pound combless packages, 60 lbs., black bees with black queen at \$5.25 per package. Good honey-gatherers and free from disease.

F. M. Baldwin, Mt. Vernon, Ga.

FOR SALE.—25 chaff hives, 20 deep extracting bodies, 25 shallow supers, all 10-frame and in No. 1 condition. A part of them have never been used. For particulars and low prices, write

Jay Fleming, 403 A. St., Lorain, Ohio.

FOR SALE.—8-frame colonies Italian bees, with-out hives, \$8.00 each; in one-story single-wall new hives, \$10.00 each. Standard self-spacing, full-depth, Hoffman frames. Nearly all wired. Bees free from disease.

Wilmer Clarke, Earlville, N. Y.

ROOT QUEENS.—Untested: May, \$3.00; June, \$2.50; July to Oct., \$2.00. Select untested: May, \$3.50; June, \$3.00; July to Oct., \$2.50. Tested, May, \$4.00; June \$3.50; July to Oct., \$3.00. Select tested: May, \$4.50; June, \$4.00; July to Oct., \$3.50. Quantity discounts: 12 queens, 10 per cent discount; 25 queens, 15; 50 queens, 20; 100 queens, 25. The A. I. Root Co., Medina, Ohio.

FOR SALE.—New supers, nailed and painted, with sections and full sheets foundation, \$1.60 and \$1.80; super springs, 60c per 100; Alley's improved queen and drone traps, 40c; Lewis No. 1 plain 4 1/4 sections, \$4.50 per 500; fences, \$2.00 per 100; separators, 80c per 100; section-holders, \$1.00 per 100; foundation-fasteners with lamp, 50c; Globe bee veils, 20c; 24-lb. shipping cases, 5-, 10-, and 60-lb. tins, and honey bottles. Special prices on large lots. I can use a few 60-lb. tins of honey.

Edw. A. Winkler, Joliet, Ills.

ADMINISTRATOR'S SALE.—To close W. D. Soper's estate. Following goods only left on hand: 60 10-frame supers, for 4 1/4 beeway sections, 75c each; 5 8-frame supers for 4 1/4 beeway sections, 70c; 300 section holders for 4 1/4 x 1 1/2 beeway sections, 2 1/2c; 500 section-holders for 4 1/4 x 1 1/2 plain sections, 2c; 200 fences for 4 1/4 x 1 1/2 plain sections, 3c; 200 fences for 4 x 5 plain sections, 3c; 100 slotted separators for 4 1/4 beeway sections, 1c; 3 Standard smokers, \$1.00; 1 Bingham smoker, 75c. These goods are all brand-new. Nina V. Cuff, Admx., 132 Chittock Ave., Jackson, Mich.

WANTED.—Swedish young man, 26 years, landing in New York about the last day of March, wants work with some extensive apiarist as helper to gain experience. Go anywhere. Some experience. Been in U. S. A. from June, 1912, to August, 1914.

H. B. N., c o Gleanings, Medina, Ohio.

STATEMENT OF OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., OF GLEANINGS IN BEE CULTURE, PUBLISHED MONTHLY AT MEDINA, OHIO, REQUIRED BY THE ACT OF AUGUST 24, 1912.

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H. G. ROWE, Mng. Editor

Sworn to and subscribed before me this 22nd day of April, 1920. H. C. West, Notary Public.

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WHY ARE WE THE LARGEST BREEDERS OF ITALIAN QUEENS IN THE WORLD?

You can't buy superior stock at any price. Safe arrival and satisfaction in every respect guaranteed.

UNTESTED QUEENS

To June 15th		After June 15th	
1	\$1.50	1	\$1.25
12 or more	1.25	12 or more	1.00

TESTED QUEENS

To June 15th	\$3.00	After June 15th	\$2.00
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BEES

1-pound packages	\$3.00	2-pound packages	\$5.50
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NUCLEI

1-frame	\$4.00	2-frame	\$7.00	3-frame	\$9.50
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No queens included at above prices.

Nuclei are on good combs, full of brood with plenty of bees.

FULL COLONIES

We can furnish, and can ship on date specified, full colonies of bees in new hives, good comb, and good strong colonies with **Tested Queens**:

8-frame	\$18.00	10-frame	\$20.00
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DR. MILLER'S QUEENS

Let's make this a Miller queen year. Dr. Miller has furnished us breeders from his apiaries, and we are the only ones that he furnishes breeders to. In these queens you get the fruits of the foremost beekeeper of the world. We pay Dr. Miller a Royalty on all queens sold.

To June 15th		After June 15th	
1	\$2.00	1	\$1.50
12 or more, each	1.60	12 or more, each	1.25

We carry a full line of Root's supplies, including the new Root-Weed foundation, Prompt Service.

THE STOVER APIARIES

Successors to
THE PENN COMPANY
Penn, Miss.

MAYHEW, MISS.

Foresight

Is Better Than Hindsight

☞ Do you recall in times past that you have promised yourself to "buy early" the next season?

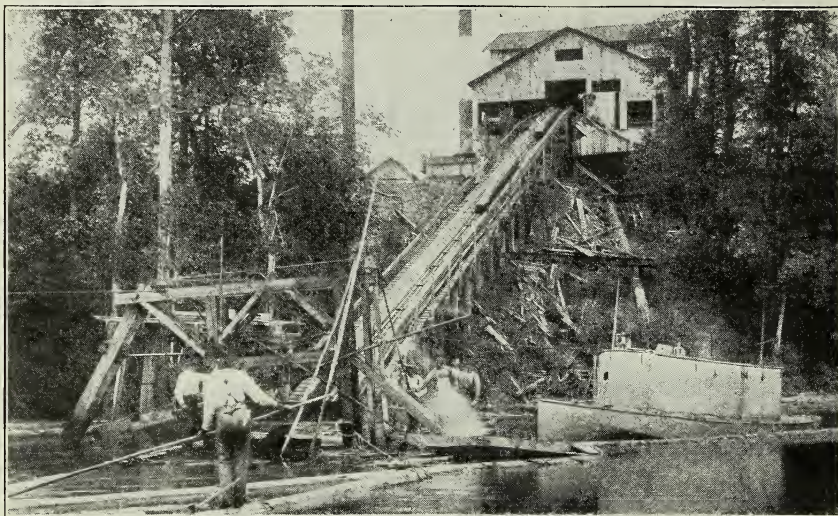
☞ Haven't there been instances where it would have been money in your pocket had you been ready for the bees?

☞ Let us suggest that you buy now for this season---and make it Root's goods. We sell them in Michigan.

*Beeswax
wanted. Send for our 1920
catalog.*

M. H. Hunt & Son
510 North Cedar Street
Lansing, Michigan

A "Beeware" Line From Mill to You



Up in the north woods snow and ice are melting.
 April's sun is turning rivulets into torrents.
 Huge pine logs are floating down to the mills.
 There they are cut into clean, white lumber.
 Once "monarchs of the forest"---now Lewis "Beeware."

Read your "Beeware" catalog cover. Your distributor's name is there.
 Write him today. His stock is ready.

Southern Beekeepers

Don't forget your "Beeware" branch, 10-12 Front Street, Memphis, Tennessee.
 Also, we are glad to announce a new distributor at Charlestown, West
 Virginia, The Kanawha Seed Company, 617 Virginia Street.

Look
for



This
Mark

Have you read "How To Manage Bees In Spring"?
 It costs 5c. All 14 booklets mailed for 70c.

G. B. LEWIS COMPANY

Branches and Distributors Everywhere

WATERTOWN

WISCONSIN

GLEANINGS IN BEE CULTURE

APRIL, 1920

The New League Again.

SINCE OUR LAST issue went to press there was held at Salt Lake, Utah, Feb. 20 and 21, an impromptu or informal meeting of the representatives of some of the California and Rocky Mountain co-operative honey exchanges, to discuss ways and means whereby all the honey of the districts named could be gathered and sold by a central agency, such agency to have headquarters at a central depot and sell the honey at the best price the market could afford. There were present from these exchanges Chas. B. Justice, Chas. Orr, and E. W. Horn, of the California Exchange; P. S. Farrell and C. E. Dibble, of the Idaho-Oregon Exchange; B. F. Hastings, of the Colorado Honey Producers' Association, and a committee from the Utah Beekeepers' Association, not yet organized, but which has already taken the preliminary steps to unite with the organization under Mr. Farrell. These various representatives met and passed a resolution favoring some agency plan that would not only stabilize the western market on honey, but prevent, as far as possible, the indiscriminate cutting of prices by independent and unorganized beekeepers.

As was naturally to be expected, there were some at Salt Lake who felt that a general marketing scheme for the whole West would be too big to be workable; that the alfalfa of the Rockies was much superior to the alfalfa of California; that in general the honeys of California were distinctly different from those of the Rockies.

On March 9, 10, and 11 there was held at Buffalo another and what was declared the final meeting of the National Beekeepers' Association. On the last day a resolution was presented and adopted, merging the old National into the American Honey Producers' League—the organization that was projected at Kansas City on Jan. 6 and 7 last. For fuller particulars see page 233 of the department Just News, where will be found the letters of three prominent beekeepers reporting on the new League as endorsed at Buffalo.

What will be the future of the League will depend on how well the beekeepers of the West (and in a larger way of the East) will take hold of it. A good start has been made at Buffalo. No organization of the kind outlined at Kansas City, Salt Lake, or Buffalo, can succeed if there are local jealousies or political wire-pullings. It is sin-

cerely to be hoped there will be none. "Politics" in bee associations? Yes, sir. There always has been a lot of it in the past, and there will be in the future, **unless** beekeepers will be **broad** enough to sink local jealousies **for the best good of all**.

Gleanings stands ready to support any organization that is for the good of beekeepers. If the new League can stabilize the market and better beekeeping conditions, we are for it heart and soul. Something of the kind is needed, and Gleanings will do its part.

IN OUR February issue, page 79, we omitted one important factor in getting brood

Getting Brood to the Top-bars, Again.

to the top-bars—namely, the factor of top protection. No matter how well frames may be wired, nor how well the foundation is reinforced against stretching, the queen may or may not go above the two-inch space below the top-bar if the top of the hive does not have a warm cover. Where there is a board of only a single thickness, a great deal of cold, if the weather is chilly, can penetrate during the night. The queen is not likely to stretch her brood up into a cold area. If she does not occupy the space, the bees will be likely to fill it later on with honey. In the case of a two-story hive, when the frames are properly wired we should expect the brood to go clear up to the top-bar in the lower story, but not in the upper story if it has an ordinary single-board cover.

The moral of this whole thing is, a hive should have a warm top, and frames so wired that neither the combs nor the foundation will stretch.

THE TORONTO Beekeepers' Association has recommended to the postoffice departments of Canada and the United States the extension of the limits in weight of parcel post between the two countries so that live bees in packages of up to 11 lbs. weight may be received into Canada, and that all such shipments be handled by "outside mail" so that the bees be not smothered. The queen and bee breeders of this country should urgently write the Postoffice Department at Washington asking that the recommendation be adopted.

IF THE EDITOR had been told a decade ago that sweet clover, the much-despised and hated so-called "weed" of the early days, would today run neck and neck with alfalfa, both in acreage



**The Onward
March of Sweet
Clover in the
Great West.**

and honey production in some parts of the great West, he would have said that that it was impossible. Yet that is precisely what some reliable beekeepers of wide knowledge and experience have told us. Nay, more; we have seen within the last 30 days, with our own eyes, that the statement for some localities is quite within the range of possibility. The day has gone by when the beekeeper was the only apologist for this plant. Today the experiment stations, the extension men, and even the ranchers and farmers, are all alike extolling its praises, and well they may; for sweet clover has redeemed and shown the possibilities of lands that hitherto have been worthless—lands that are bringing in price almost as much as alfalfa land. In spite of this showing, there is a professor who said that sweet clover was nothing but a noxious weed. That is about as much as some professors know. If they will go west their eyes will be opened.

It is not true that in all localities sweet clover ranks with alfalfa in honey production. In some places, on account of its limited area, it does little more than to build up colonies so that when alfalfa is at its best the bees are strong enough to get the honey; but even then it is more than welcome; and without it, in many instances, the production of alfalfa would be at a low ebb.

But where the plant is not valued for bees, the rancher knows it will start on land where alfalfa could not catch. After a good growth of the sweet clover, alfalfa may take root, where its growth before would have been difficult if not impossible. More and more the farmers (thanks to the extension men) are learning that, as a soil-improver, it has no equal, and they are putting it in. Moreover, it is self-seeding along the streams, irrigating-ditches, and roadsides, where it is tracked in from other localities.

The way it has been spreading all over the Arkansas Valley and the Rocky Mountain districts, is beyond all belief. It is amazing. Along with it has grown new bee territory that is not overstocked, and it will be a long time before it ever can be. Said a beekeeper of 1,500 colonies, who has kept bees all over the West and in California, "Some of the best bee territory in the whole of the United States is in South Dakota, where sweet clover has gotten under such headway." Then he added, with a twinkle, "If I had 10,000 colonies I would scatter them on some of these sweet-clover and alfalfa ranges in the Arkansas Valley running thru Kansas and Nebraska." We would

give the name of this man, but fear that he would be flooded with questions. He ought to know what he is talking about, for he has kept bees in all of the good locations in the Rockies and in California, and yet proposes to go on the "dry farming" territory where sweet clover thrives in the middle West—not because it is better bee territory than the irrigated regions, but because it is open with few or no bees.

"Dry farming" territory—what do we mean by that term? The phrase is applied to territory in South Dakota, Nebraska, and Kansas where the rainfall is very limited, the rains coming in March or April, quite heavily sometimes, and then no more rain for a year. The soil is deep and rich, and holds moisture for a long time. While dry-farming land does not yield as rank a growth of alfalfa and sweet clover as does the irrigated country, it saves all the expense of irrigating-ditches, "water-rights," and the enormous first cost and upkeep of water-pipe that often extends for miles and miles from rivers or the melting snows of the mountains. The heavy rains of one month in southern Kansas, for example, put the land in shape to grow alfalfa on the lowlands, and sweet clover on the uplands for the other eleven months. Four or five cuttings of alfalfa are secured, we are told. Sweet clover is not cut for hay in most localities, but is pastured for cattle.

Acre for acre, alfalfa, when in full bloom, will yield far more honey than sweet clover; but, unfortunately, the former is cut just as it gets nicely into bloom, while the latter, in the majority of cases, is not cut but pastured, and the bees work on it continuously. It is for this reason that in many localities sweet clover yields as much honey as alfalfa. In very many parts of the West there is just enough of sweet clover mixed with the alfalfa to give it that beautiful cinnamon or vanilla flavor so prized by many. Still again, it is valuable only for brood-rearing.

The time may come when sweet clover will be the predominant honey of the West. It is generally believed that the plant has made only a start. When it gets thoroughly established, then we may see an era of beekeeping the like of which was never known before. The great States of Wyoming and Montana, as well as parts of Nevada, are just opening up to bees. Sweet clover is fast getting a foothold; tho, if irrigated, it is being replaced by the more valuable plant alfalfa. If the latter can not grow, sweet clover clings on.

Elsewhere we have spoken of the problem of overstocking, which we find so rampant in parts of the West. If some of these overstockers could only know that there is plenty of bee range open, and would take a little pains to find where these ranges are, carloads of honey could be saved and a world of ill feeling avoided. If you can't find these ranges, write to the editor when he gets home; but please tell to what part of the West you wish to go.

OUR bees are wintered in the cellar, not because we consider it the best method of wintering, but because of circumstantial necessity.

No matter what one does, there is little use in doing it, unless it is done well. Cellar wintering of bees involves many problems that must be solved if the beekeeper is to be successful. Many beekeepers count the number of their colonies in the spring by the number of queens that are alive, instead of by comparison with a first-class normal colony well supplied with worker bees.

There are a great many things deemed necessary for successful cellar wintering. Perhaps most of them are necessary. This article deals with just one of these. To go into details on all of these supposed essentials for successful wintering would require many more articles like this one.

Big Problem for Cellar Winterers.

This one essential is this: When to put your bees in the cellar, and when to take them out.

Dr. Miller says, "Cellar your bees the day after they take their last flight before winter." But the trouble is that the beekeeper is uncertain as to when this last flight will be.

Every fall the problem confronts him: "When shall I put the bees in the cellar? Shall I put them in now or shall I wait for another flight?" It certainly is a grave and important question. When bees are subjected to severe freezing weather and enjoy no cleansing flight, the result may be disastrous. Certainly they will not be as quiet in the cellar because of accumulated feces. Dysentery may result, which might not have resulted had they enjoyed a cleansing flight the day before they were put in the cellar. Again, continued exposure to freezing weather is a drain on the stores of each colony, which means dollars and cents to the beekeeper.

Solution of Problem.

As big as the problem is, and as uncertain as it may seem, there is, however, one agency that the beekeeper can fall back on. This is the U. S. Weather Bureau. How often have we heard people laugh about the "weather man" and jest about his supposed guesses at the weather, and describe him as "way off" when he predicted rain and none fell to quench the thirsty pasture lands! These same individuals do not stop to consider that the Weather Bureau is forecasting for a relatively large area, and while the forecast may be verified in most sections, it did not materialize in certain small sections. Again, forecasts are made for 24 hours in advance, and local conditions may

ARE BEEKEEPERS ASLEEP?

*What the U. S. Weather Bureau
Can Tell Them About the Cellar
Wintering of Bees*

By C. W. Aeppler

involves several articles as long as this one; the reader can easily determine this for himself from any bureau in this country.

While still a student in college I became much interested in weather forecasting in connection with beekeeping, thru a course I took under the direction of one of Uncle Sam's trained forecasters. I began to keep tab on the weather and during the past few years have kept these data mainly for my own observation in order to ascertain how it would affect beekeeping. At first I did not realize, perhaps, what a great thing it is; but the whole matter has worked out so well during the past seven years that I consider it safe to let others in on the secret.

Needless to say, latitude is the determining factor, and anyone farther north or south must slightly adjust their dates accordingly.

Times of Flight in Fall and Spring.

From the graph accompanying this article, it can be seen that bees had a flight at this latitude, in this part of the country, every year in the past 10 years between the dates of Nov. 10 and 20, except in 1910. In 1910 bees did not have a flight after the last week in October.

In 1911 the temperature was 70 degrees on the 11th of November. In 1912 there were two periods, one on Nov. 11 and again Nov. 19. In 1913 it was similar. In 1914 bees flew on the 10th and again on the 14th; in 1915 between the 10th and 12th. In 1916 the bees flew well on the 19th, the temperature being only 50 degrees, but very little wind. In 1917 the bees flew on the 11th and had a most wonderful flight on the 18th, the temperature being 65 degrees at noon. In 1918 there was a possibility of flight on Nov. 12, but they flew very little because of a brisk west wind. However, on Nov. 16 they had a good flight and were put in the cellar on the 18th. In 1919 temperatures remained very low the first half of November. However, on the 17th with a temperature of 50 degrees and 2½ hours of sunshine in the middle of the day, the bees had a good cleansing flight. There was scarcely any wind at noon. We recorded a temperature of 49 degrees on Nov. 22nd. It was well that the bees were put in the cellar on the 19th, as a brisk wind would have prevented their flying.

It is my experience that 50 degrees is the basis to go by. Bees will fly well this late in the year at 48 degrees, provided there is practically no wind, and the day is very clear. Also, bees will fly better at 52 de-

ffect the forecast, whereas the forecast for the area is exactly correct. It is not my purpose to dwell on the methods used by the Weather Bureau, as that

grees with a slight wind than at 50 degrees and almost no wind. The condition of cloudiness has much to do with it, also.

The outstanding feature of the proposition is this: Every year during the month of November (1910 excepted) during the past 10 years our bees have had a flight before being put in the cellar. I did not keep temperature figures previous to 1914, but I do know that the bees had their flight. Also, in order to make the graph as uniform as possible, I am taking the records of the Weather Bureau as a basis, as my temperature records vary slightly from theirs, probably because of a less efficient thermometer, mine reading slightly higher. This period I have found to be between Nov. 10th and 20th. However, the rule may fail, say once in 10 years. Therefore, if the bees would secure a good flight between the 5th and 10th of November, I would not wait for another chance. But inasmuch as the rule given has failed only once in 10 years (in 1910), it seems safe to say that a beekeeper can expect to secure a flight for his bees

some time between Nov. 5 and 20 every year in this section of the country.

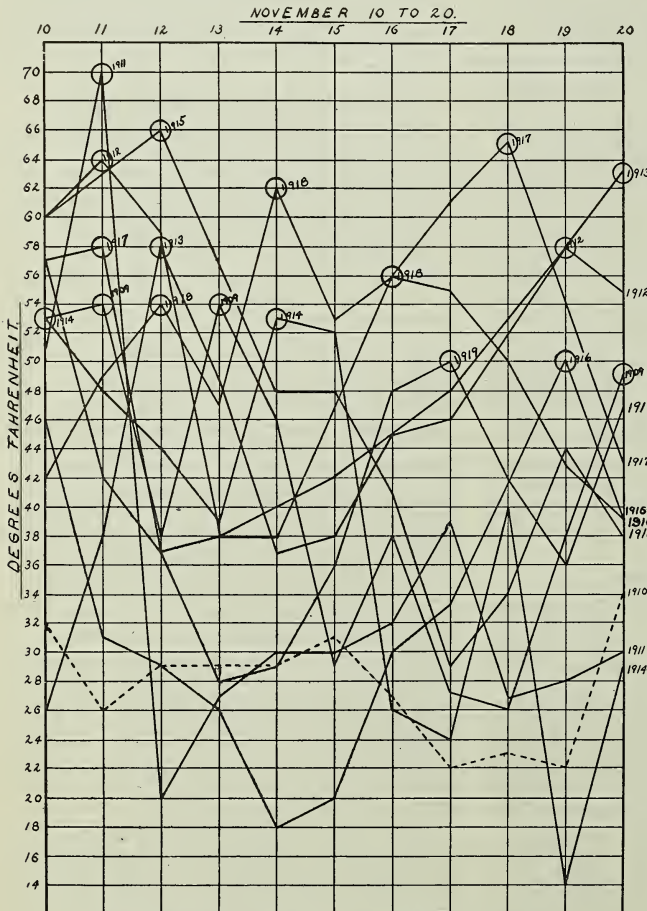
How to Use the Weather Bureau.

Now, supposing your bees secured no flight from Nov. 1 to 15 don't shudder and fret about it. From the first of November and until the bees are in the cellar, it is advisable to be in constant communication with the nearest U. S. Weather Bureau. The service is so liberal that the forecaster will write you a personal letter every day for two weeks if necessary. However, this may never be necessary, for he can forecast the weather with certainty farther ahead than 24 hours. In the first place, he has climatological data covering the past 46 years and can determine in how many years a temperature of 50 degrees and over has occurred on a particular day in all these years. It might be surprising to say that in this locality there has been a temperature, after November 20th, of 50 degrees and above only 8 times in the past 46 years. The Weather Bureau is authority for this. So you

see the dates, Nov. 5 to 20, are a safe range to go by in waiting for a flight.

Again, the forecaster is in constant communication with all other stations in the U. S. and Canada. He can, therefore, with certainty forecast the temperature and weather conditions for a week in advance. In fact, I have had the Weather Bureau give me the probable weather for 10 days in advance, and am happy to say that the forecast was completely verified. In fact, I consider this one forecast worth many hundred dollars to me. The bees were put in the cellar and had no other opportunity for a cleansing flight that fall. Zero temperatures were encountered soon after. Surely, the forecast was worth a great deal financially.

Each fall and spring I am in constant communication with the Weather Bureau. In fact, I know the probable temperatures that are likely to exist at least 72 hours in advance. In the fall of 1919, this service was certainly worth much. The bees were put in the cellar on Nov. 19. Temperatures dropped daily after this date, and by Dec. 1 we had zero weather, and



GRAPH SHOWING POSSIBLE FLIGHTS FROM 1909 TO 1919.

December, 1919, was the coldest December in the past 46 years from a statistical standpoint. Bees left out had to suffer all of this cold weather, many beekeepers probably placing them in the cellar the middle of December. Surely those bees were not fit to be put in the cellar.

Similarly in the spring, the Weather Bureau can be of service. Suppose the weather has been nice for several days, and pollen in sight for the bees to gather, if set out. The beekeeper seriously thinks of removing the bees from the cellar. Possibly the season seems earlier than usual. However, if he knew that 72 hours later, there would be a sudden drop in temperature, and his bees would be subject to a week of freezing weather, he certainly would not remove his bees from the cellar. The beekeeper does not know this, neither does the weather calendar hanging on the wall in his kitchen. The forecaster of the Weather Bureau does, and the beekeeper can have this information for the mere asking.

Young queens, plenty of young bees, ample protection, good and sufficient stores, and proper cellar temperatures are all determining factors in wintering. For the man who winters his bees in the cellar, there is one more problem: When to put them in, and when to take them out. The U. S. Weather Bureau can assist you in solving this important problem each fall and spring. Oconomowoc, Wis.

[In a private letter which Mr. Aeppler wrote us he says, "What I can't understand is that more beekeepers who winter in the cellar have not in the past availed themselves of this splendid service." In the January, 1920, Domestic Beekeeper he saw the following by Mr. Kindig: "This year a large part of the bees which are normally wintered in the cellars of Michigan were put in without an opportunity for a cleans-

ing flight. At this time some of the bees are swollen, and in other colonies unmistakable signs of dysentery are present * * * at a recent convention the following question was raised * * * should the bees be put in anyway, etc. * * * The writer hopes that some of those who follow cellar-wintering will write in their experiences as they relate to the solution of the above question." Mr. Aeppler, accordingly, wrote to Mr. Kindig suggesting that he get in touch with his local Weather Bureau and determine whether or not they recorded a temperature of 50 degrees or more on Nov. 17 or 22. From his knowledge of climate and weather he thought the bees should have had a flight in Michigan on Nov. 18 or one day later than in Wisconsin.

Mr. Kindig was quite interested in the matter and obtained the desired data, which showed that the bees of Michigan had a chance for flight on Nov. 17. On that date the temperature in Michigan was 7 degrees higher than in Wisconsin at the same latitude, the westerly winds being tempered in crossing Lake Michigan. Also, the day was clear and suitable for the flight of bees. The fall of 1919, Mr. Aeppler says, was one of the most open falls in the past 46 years, and the beekeepers, therefore, did not quite realize the lateness of the season and thus left their bees out too long. Had they made use of the Weather Bureau this would not have occurred. This one illustration should serve as an object lesson to those who winter in the cellar. Mr. Aeppler believes the only safe practice for any beekeeper is to get the climatological data for his immediate vicinity and determine how many chances his bees have for a flight before Nov. 20. He is convinced of the wonderful service that the Weather Bureau has rendered and can render to the beekeepers of America, if they will only ask for the information when needed.—Editor.]



THE South can more easily produce bees than a crop of honey. Their honey flow is usually light for many months of the year. This is conducive to brood-rearing, at the expense of the honey crop. The North can more easily produce honey than bees. There is usually a heavy honey flow, with periods of scarcity of nectar.

It is possible to take advantage of these conditions by utilizing the Southern bees to gather the nectar of the North. The transportation of the bees may be in their hives by freight, or by packages of bees by

PACKAGE BEES A SUCCESS

*Large Packages at Beginning of
Main Flow More Profitable Than
Small Packages Earlier*

By Dr. Ernest Kohn

parcel post or by express. When the distance is short, as between Utah and California, the freight shipment of colonies and equipment is considered profitable. For the North-Central States and Canada, on account of the long haul and the time consumed on the road, the freight shipments of colonies with equipment has usually met with failure. The package business, however, has generally been successful.

Success of Package Bees.

The object of a package of bees is to be or to make a profitable colony by making

increase, to take the place of winter-killed colonies or to strengthen weak colonies.

A few years ago a few enthusiasts of the package predicted that we in the North would find it profitable to kill our bees in the fall after the honey flow, and replenish in the spring by packages obtained from the South. I have no data that this has been tried, but David Running of Filion, Mich., in 1918 compared packages with well-wintered colonies. Two-pound packages, received April 27, after deducting five pounds fed in the spring, still averaged 21 pounds per colony more surplus than the average of the old colonies in the same yard. Two-pound packages, received May 15, averaged four pounds less than the old colonies after making the five-pound feed deduction.

How Packages Are Sent.

The package or cage is made of either wood or wire. For parcel post the postal regulations provide for wood, with saw-cuts not to exceed 1/12 inch for ventilation, or with double wire cloth, the outer and inner at least 3/8 inch apart. For express the package is usually made of a single thickness of wire screening. Either package should have at least 360 cubic inches for each pound of bees.

The feed for the bees en route is either sugar or a frame of honey. Sugar is usually recommended and used on account of possible foul brood, and, in the instance of the mails, liquid feed is not permissible. I prefer the package supplied with a frame of honey and brood. If I did not have absolute confidence in the shipper, I would shake the bees on foundation, and either destroy the combs, or collect them and use them on

a limited number of colonies until I was sure they were free from disease.

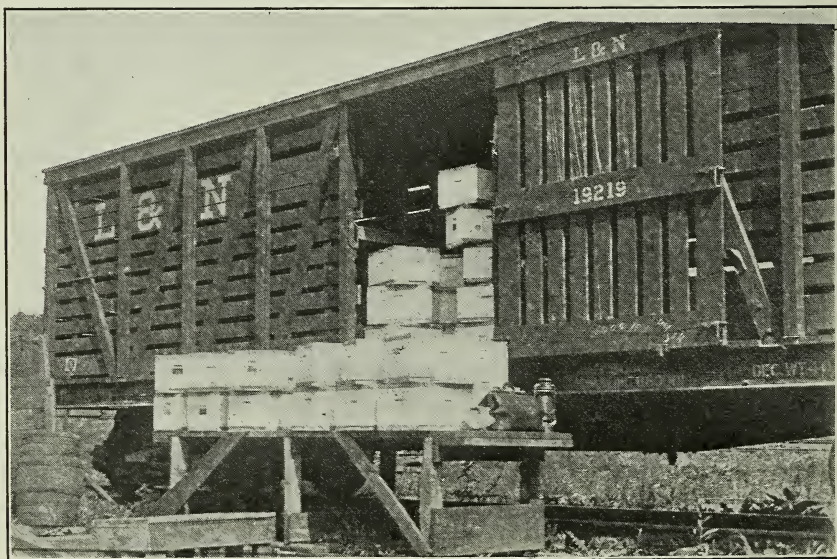
Packages are being transported by parcel post and express. The mails became available for bee shipments in 1919, thanks to the especial efforts of Dr. Phillips and E. R. Root. For short distances and small packages, the parcel-post shipments have been successful. For larger packages and long distances the express has particular advantages, as the postal regulation limits the distance to five days en route and does not allow water nor honey and gives no recourse for loss.

Arrival and Treatment.

The time of arrival should be according to the size of the package, and whether or not a crop of honey is expected. A small amount of bees, received early, with proper care will make a fair-sized colony at the honey flow. Instead of all cash, one is investing a part in food and labor to make a working colony. On the other hand, large packages should be used if received near the beginning of the principal harvest.

If the weather is not favorable when the bees arrive, the packages should be sprinkled with a mixture of sugar and water, and placed in a cool, quiet, dark cellar or room until outside conditions are favorable. When favorable, place the bees in hives on drawn combs preferably, or on full sheets of foundation, and give feed. An excluder placed beneath the hive will prevent the possibility of the bees deserting their new home. A frame containing brood will have the same results.

If packages are received before the middle of May, they should have abundant pro-



A carload shipment of bees from Florida.

tection. I like the quadruple case packed as for winter. Feed should be given in all cases; honey and pollen in combs, with the cappings bruised, or sugar syrup. The feed may all be given at one time or at intervals; but be sure that there is no scarcity at any time till nectar is coming in fast enough to supply more than their needs.

My Experience with Package Bees.

About May 10, 1918, I received 300 pounds of bees. Of these I made 60 three-pound colonies and 20 six-pound colonies. These were all treated the same, by giving each colony the combs on which it was shipped, one or two frames of honey and pollen, three or four empty combs, and filling the remainder of the hive with full sheets of foundation. Those worked as three-pound colonies produced a surplus of 25 pounds, while those worked as six-pound colonies gave 75 pounds surplus. All these were left with sufficient stores for wintering in one hive body. It will be seen that the six-pound package gave 50 pounds more surplus

high for winter, they produced 60 pounds surplus.

The one-pound package cost me \$4.00, which the bees still owe me, besides owing in addition two frames of syrup and the labor of packing and feeding and later the labor of unpacking.

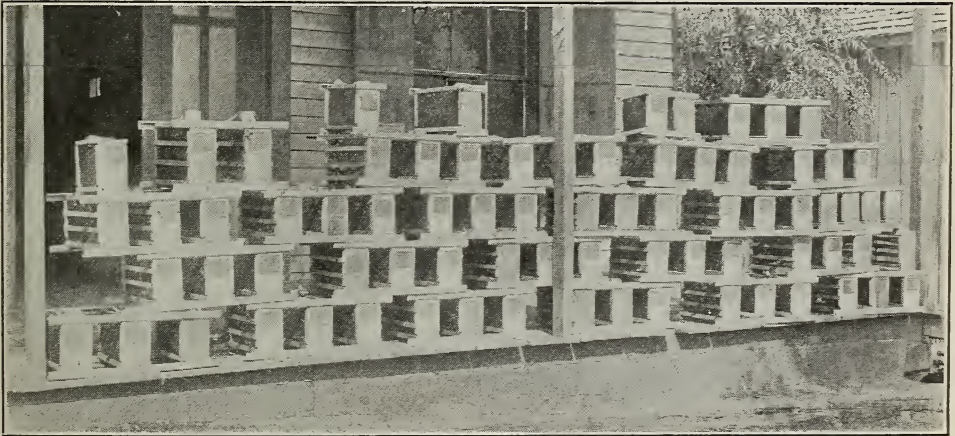
The six-pound package cost \$9.30. At 20c per pound for honey they paid for themselves, gave me \$2.70 additional, and required less labor and feed.

My Experience with Bees by Carload.

For comparison, I want to say that last season I handled a carload of bees from Florida. The bees came thru in good condition, and were given splendid pasture. The 270 colonies produced 5,015 pounds of surplus, or less than 15 pounds per colony. The bees dwindled to about 200 colonies. They had no disease.

Conclusions.

For my locality, carload shipments are not profitable. Packages are a success. The



A big lot of pound packages just arrived. Such colonies should have immediate attention.

than the smaller package. This gave me \$10.00 additional for an extra investment of \$4.00.

For 1919, as an experiment, I purchased 25 one-pound packages which arrived April 16 to 20. Also 600 pounds, which arrived about May 15. The one-pound packages were given a frame of honey, and later, two frames of sugar syrup. They were packed as for winter in quadruple cases. These built up to two stories for winter but gave no surplus.

The 600 pounds, received about the middle of May, were worked six pounds to the colony. They were given the two combs on which they were shipped, and about one full comb of honey. The remainder of the hive was filled with full sheets of foundation. No other feeding was necessary, as nectar at that time was coming in in sufficient quantities. After leaving them two stories

large package at the beginning of the clover flow is more profitable than small packages received early. I believe that 9 or 12 pounds of package bees in one colony are worth a trial. I prefer bees to be shipped on combs. The shipper should send 10 per cent extra bees.

Grover Hill, O.

[In regard to David Running's experience with package bees, he states: "This experiment was made in 1917. The home-wintered bees were much stronger at the beginning of the honey flow, but just at that time were struck with the disappearing disease, which weakened them very much. For some reason the package bees were not affected. Had it not been for this disease affecting the home-wintered bees, they would probably have given a greater return than the package bees gave."—Editor.]

MORE POINTS ON WIRING

*Best of Many Wiring Suggestions
Sent to Gleanings Since our Febru-
ary Issue. One by Dr. Miller.*

By the Editor

SINCE the article on wiring appeared in the February issue of Gleanings, many have been writing us on the subject, some commending either vertical wiring or else the recent improvement on Stone's method—that is, four horizontal wires with two diagonals attached to the middle of the top-bar, others giving their own methods of wiring or else making other interesting suggestions. Knowing that our readers will be interested in the subject, we shall give them a brief glimpse into a few of these letters.

Criticises Principles of Wiring.

L. L. Wheeler, U. S. Asst. Engineer, Sterling, Ill., says: "It is a principle in mechanics that a load of any size, even a very small one, placed on a straight line, such as a wire supported at two points, produces infinite stress on the line until it either sags or breaks. It follows, then, that the horizontal wires in a frame will sag with the load of honey and brood if means are not taken to prevent this sagging."

He says the method of using four horizontal wires, and drawing the wires down when imbedding them, "is wrong in principle, as it puts a strain on the wires in the same direction as will the load placed on them later by the bees." This criticism, he says, "also applies to the Stone method of wiring, as the wires from one hole to the next run along the grain of the wood; and, as the wood is softened by the moisture in the hive, the wires will cut into the wood with the increased load. The diagonal wires in the Stone method can have no effect in preventing sagging except as they make the upper wire taut. If the load, added to the strain of the diagonal wires, causes the upper wire to sag, the diagonal wires are without further effect. In the method proposed by Mr. Root, the diagonal wires can sag, but will have more useful effect than those in the Stone method."

The Ventura method, he states, is correct in principle, supports the two upper wires properly at the center, but would permit those wires to sag between the center and the ends, and also there would be no support for the two lower wires. We think, however, that if the two upper wires are supported properly at the center, that is exactly where the support should be, and we do not think the beekeeper need worry much about the rest of the comb.

Objections to Knotting the Wire.

Mr. Wheeler suggests both horizontal and vertical wiring with a "clove-knot" knot wherever the wires cross. In principle this is doubtless a good method; but in practice we believe it will be found that there will be a few unused cells at every place

where the wires are knotted. Moreover, knotting the wires in this way would take a prohibitive amount of time, and would prevent the foundation from

being imbedded by electricity, as the current would short circuit instead of heating the whole length of the wire. This last objection also applies to several others of the suggested plans.

Prevention of Wires Imbedding in Wood.

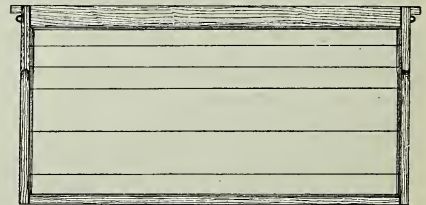
One valuable suggestion in Mr. Wheeler's letter is his way of preventing wires from imbedding in the wood and thus causing slackness. He speaks of passing the vertical wires out of the holes to tacks, fastening them crosswise to the grain of the wood. To us there seems but little question that much of the slack is caused by wires gradually imbedding in the wood running lengthwise of the grain. Any practical plan that will overcome this difficulty will help wonderfully in eliminating the sagging problem. Right in this connection, we rather suspect that Mr. Stone's success with his wiring is due not entirely to his style of wiring but also to the fact that he uses a wire much larger than the ordinary wire. Other suggested ways of preventing the wires from imbedding in the wood are similar to the one made by W. D. Jefferson of Mammoth, Arizona. He drives in one $\frac{3}{8}$ wire nail on the inside of the frame at each point of attachment, and then by means of a little tool made by his blacksmith he bends each nail in the form of a hook for attaching the wire.

Loose Wiring Causes Slack.

A few have offered objection to loose wiring, saying the wires should be drawn taut. One claims that loose wiring has spoiled more combs for him than any other one thing.

Adding a Fifth Horizontal Wire.

Two have suggested that the ordinary horizontal wiring could be greatly improv-



A fifth horizontal wire helps some.

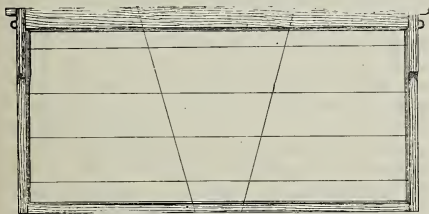
ed by adding a fifth wire; and one suggests using the ordinary wiring, only placing the top wire $\frac{3}{8}$ of an inch from the top-bar instead of one inch as at present, and then

putting a fifth wire halfway between the two top wires. This would supply some additional support exactly where needed.

A Fair Plan.

Among the different plans handed in, W. H. Keller's is one of the best. It is as follows:

"Among the various methods of wiring frames suggested in the books and magazines I have not found any just like my method. I nail my frames ten at a time in a clamp similar to the one described in *Gleanings* for April, 1917; and while they are yet in the clamp, with an automatic hand drill I drill two holes thru the top-bar and two thru the bottom-bar. Those in the top-bar are about 7 inches apart, and equally distant from the center; and the ones in the bottom-bar are about $1\frac{1}{2}$ inches apart, also equally distant from the center. The drill is held sloping toward the end of the bars so that the holes approximately line up. Tacks are started at the side of the two holes in the top-bar and also beside the top and bottom holes in one end-bar while the frames are still in the clamp. I put in the horizontal wires in the

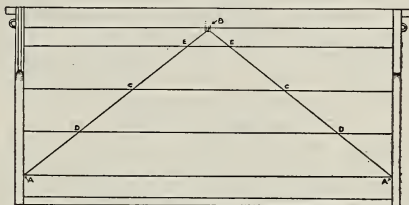


Keller's plan of wiring.

usual way, making them as tight as I can without breaking. Then I put in the diagonal wire down thru one hole in the top-bar, thru one in the bottom, back thru the other, and out thru the second hole in the top-bar. The end of the wire is given a couple of turns about the tack, and then the slack pulled back and a couple of turns made about the tack at the first hole. The tacks are driven home, and the wire broken off. This diagonal wire is not drawn very tight—just enough to take out all the slack and pull up the middle of the bottom-bar slightly. Of course, these holes are all drilled so as to have the wire all in the same plane; but in putting in the diagonal wires I do not weave them thru the horizontal wires. It is better not to. I use electricity for imbedding the horizontal wires first, and then the diagonal. Now, I know you will say that is a lot of fussing and killing time. Well, I am more concerned in getting a frame as nearly perfect as possible than in saving a little time. It takes only a few seconds to put in the diagonal wire, and I believe it is worth while. I got started on this method by having to overhaul a lot of hives in which there were flimsy frames without wires or foundation. After I got them wired up thus and filled with full sheets of foundation, and the bees had done

their part, they made such fine combs that I have never used any other method since."

We suggest that if the sheet of foundation is inserted between the two sets of wires, the horizontal and the diagonal, there will be no trouble from short circuiting. The plan looks pretty good; but, tho similar



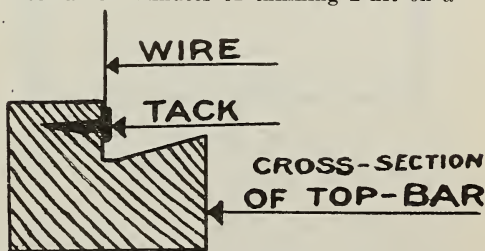
Good method of wiring advocated by E. R. Root.

to the one which is advocated by E. R. Root, we do not consider it so good, because the diagonal wires can not be drawn taut.

A Valuable Kink.

In connection with the plan last advocated by E. R. Root, Geo. Mack of Silver Creek, N. Y., offers a kink well worth trying. We give the following extract from his letter:

"Wiring of frames has never been at all satisfactory with me. I have tried every method in existence (except E. R. Root's trick), and still I have never been satisfied. The nearest I have ever come to being suited was to wire in the regular way and then put in two diagonal wires. This, however, did not quite suit. Friend Root's trick hits the spot with me exactly, for I know he would never have given it to us unless he had known what he was talking about. Now, in trying the trick, the staple in the top-bar struck me as being by far the best. I tried the staple, but it did not work out quite right. If I put the staple close to the saw-kerf, so as to have all wires touch, the wood split and the staple pulled out. After a few minutes of thinking I hit on a



Geo. Mack's plan for attaching the wire to the top-bar.

plan which, being tried, worked perfectly satisfactorily. It was nothing more nor less than the old time-honored tack. The cut, I think, describes it better than words. After a few hours' practice I could put this extra wire in nearly as fast as I could do it the old way. Another kink I have found out about the wiring game is the use of a pair of pincers or pliers for setting the

tacks. This works much better than using a hammer. The best pincers I have found are those with adjustable jaws, using them with the widest opening."

In connection with the use of pliers, A. A. Clarke of LeMars, Ia., says: "After the frames are wired and lying on the board ready for imbedding, place the foundation in the saw-kerf. With both hands place the wedge in place, take the frame in the left hand, with the pliers in the right, press in the wedge. Only a few motions and the wedge is firmly set even with the top-bar."

Uses Only One Wire.

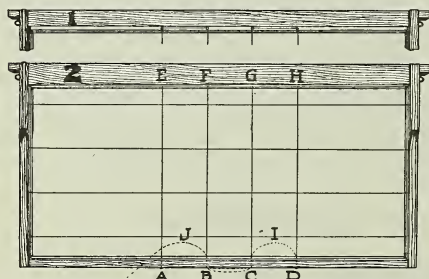
John D. Dietrich, Middleville, Mich., after trying Mr. Root's plan of wiring, says he can wire more quickly with one wire. He says: "I begin at the top hole and wire horizontally in the regular way until I come to the last hole. Then I drive a nail in the center of this hole; pass the wire around this nail and then wire diagonally. I think this is a good deal quicker than wiring the frame in the regular way and then wiring the frame over the new way."

Vertical Wiring.

The A. I. Root vertical wiring, used so long ago, has been sanctioned by a number who seem to agree with A. W. Lindsay of Detroit, Mich., who says: "We must all take off our hats to A. I. Root, and acknowledge he was a long way ahead of his time."

Four vertical wires and four horizontal is the plan of J. E. Thompson, Medina. He puts in the vertical wires very rapidly.

He first pierces four holes equally spaced in the middle six inches of the bottom-bar, then puts in the horizontal wires in the



Vertical wiring may be done rapidly by J. E. Thompson's plan. The foundation which is placed between the vertical and horizontal wires is not shown in the cut.

usual way, and places the foundation on the wires. In the top-bar, just opposite each hole in the bottom-bar, he uses an awl and pierces a hole thru the top edge of the foundation into the side of the saw-kerf as shown above, and into this hole he forces a $\frac{3}{8}$ -inch tack. The tack is not forced clear in, but is left projecting slightly. To wire vertically he threads the wire down thru the bottom-bar at b, up thru the hole at c and down thru at d, and there secures the end by a tack driven in at one side of d. The loop of wire (i) is

then drawn to the top-bar and slipped around the heads of the tacks at h and g. The wire at b is then passed around the heads of the tacks at f and e and attached at a. The tacks in the top-bar are next forced clear in, and the wedge nailed in place. Each set of wires in turn is then imbedded either electrically or by hand.

Dr. Miller's Contribution.

Of all the letters received, the one that may interest our readers the most is one by Dr. Miller concerning "splints and vertical wiring." (See page 228.) The letter is addressed to E. R. Root and is as follows:

"It needs no argument to show that wired combs are ahead of splinted ones for extracting; but when you laid yourself open to attack by practically saying that a thing couldn't be done that I'd been doing straight along, do you think I'd miss the fun of having a whack at you? The more firmly the comb is held in the frame, the greater the speed that can be reached; and the greater the speed, the better. I'm none too sure that the splints do anything whatever to keep combs from breaking out of the frame. They are a little shorter than the distance between the top-bar and the bottom-bar, and do not, as you seem to think, go down between the two parts of the bottom-bar. Yet I think you would be no little surprised to know how satisfactorily splinted combs work as extracting-combs. You picture to yourself a feeble old man running a two-frame extractor at a slow rate. Instead of that, the extractor is an up-to-date one with four pockets, the operator hired having an arm stronger than yours, and the extractor would not be run so very much faster if there were no danger of breaking. But even a little difference is worth considering when it comes to running an extractor by power.

"It would not surprise me if any day something might turn up that will revolutionize this whole matter of extracting. Indeed, it may well be that the whole of beekeeping is yet in its infancy; and there never was a time when a better brand of brains could be found at work on its problems. The Government never was so interested as now, and beekeepers may well feel proud to have as a leader such a man as Dr. E. F. Phillips.

"In one respect, Mr. Editor, you give me credit I don't deserve, and I must climb down to a lower seat. You think I devised foundation splints with the view of having the queen extend her laying clear to the top-bar. Instead of that my aim was to get combs built down to the bottom-bar, and I did not know till later that there was any stretching at the top, for I had none, my wires all being vertical.

"It wouldn't surprise me to hear A. I. Root chuckling and saying, 'With all your new plans, what have you any better than the old, simple, vertical wiring?'"

C. C. Miller.



BREEDERS ON THE SQUARE

Why Not Safeguard Breeders in the "Code" as Well as Buyers?

As I am one among hundreds of beekeepers who buy queens each year, and bees in packages to a lesser degree, naturally I was very much interested in the "Code for the Sale of Bees and Queens," as explained editorially in February Gleanings. My purpose in writing this is not to criticise the agreement, as signed by the great majority of breeders and shippers who advertise in Gleanings, for I think that everything is provided that is at all necessary to safeguard the purchasers, especially when the guarantee of the publishers of this journal, as given on another page, is taken into account.

On the other hand, it is my purpose to call attention to the fact that possibly in some cases the buying public do not always do what they can to help along; and, in a few cases at least, positive dishonesty on the part of the purchaser is liable to occur just as much as among the sellers of bees and queens.

In reading of the dishonest proprietor of the "Pelican Apiary," beginners might be led to think that this is a common occurrence among queen-breeders and shippers of bees, altho all who have been in the business for any length of time know that this is not so. Needless to say, the editors of this journal have in no way insinuated that such is the case. For the past 15 years I have annually bought numbers of queens from many different breeders, and, while all stock did not give satisfaction, yet I am not sure that I was ever dealt with in a dishonest manner. The men, as a rule, with whom I have dealt have always acted in a gentlemanly way—indeed, it has been a great pleasure to do business with most of them—and some from whom I do not buy queens at present, are nevertheless counted as very close friends. So I repeat that while an occasional shipper may be "crooked," the great majority are "four square" in every way. While I believe that the great majority of beekeepers who buy queens and bees are also honest, yet that an occasional one may be a crook is none the less true, as the following occurrence will prove.

Some years ago while examining a large apiary, the owner in a burst of confidence remarked: "A dozen queens came a short time ago from the same place, and I laid them on the window sill in the hot sun for a few minutes, and every one was killed. I wrote the queen-breeder and said that the queens all arrived dead, and he sent me another lot at once to replace them." The

queen-breeder in this case (an Ontario man) happened to be a close friend of mine, and I can assure you that this beekeeper never again told me of any similar transactions on his part after I told him what I thought about it.

When queens are expected by purchasers, provision should be made for their reception; and, as we now have so many rural routes thru the country, care should be taken that they are not left in the mail boxes too long in very hot weather. Some of the smaller-sized boxes, in particular, get very hot in the summer time; and, even if the queens are not killed, too long a baking certainly does not improve their vitality.

So far as receiving bees in pound packages is concerned, the buyer can go a long way in helping towards satisfactory conditions. The shipper of bees should always notify the purchaser a day or so before the bees are sent, and then the purchaser should be prepared for the bees when they come. If some distance from the station, engage some one whom you can trust to look after the bees by placing them in a cool place out of the sun and giving them a sprinkling of water or thin syrup, as required. If shipment is made to Canada, all the more need of care for their reception, for bees, like other merchandise must go to the Customs' office for clearance, even if they are admitted duty free. If not, have some one near your Customs' office engaged to make clearance the moment they arrive and have the bees forwarded to you. If an easy distance, have some one wire you as soon as they arrive, and go personally and attend to them, bringing them with you if making the trip by auto. If no care is taken in this regard, the bees may arrive and possibly no notice be sent you for a day or two, as some Customs' officials never seem in a hurry, to say the least. The day or two of delay while they are lying in a hot building may be the cause of a lot of loss and disappointment all around. I have bought some bees in packages for the last few years, and I always have some one clear and rush them to me at once. Co-operation between shipper and receiver always works well, no matter what is being handled, and in the case of bees and queens there is no exception to this rule.

I almost forgot to mention that for all I have said as to amicable relations in my past dealings with queen-breeders, just at present I happen to have a dispute with one of them. A certain breeder down in Tennessee was to send me quite a lot of queens last summer; but, thru the rush of orders and not being able to make delivery at the time I had specified, he kindly had another breeder send me queens in his place. But before this he had already sent me a dozen

FROM THE FIELD OF EXPERIENCE

queens for which I have no record of ever paying him. In fact, I feel sure they were not paid for. He insists that all were paid for, and that I owe him nothing. What shall we do in a case like this—the proposed “code” is of no use here. However, neither one of us has as yet decided to go to court over the matter.

J. L. Byer.

Markham, Ont.

THE COSTS OF PRODUCTION

Beekeepers Need to Adopt a Cost Accounting System

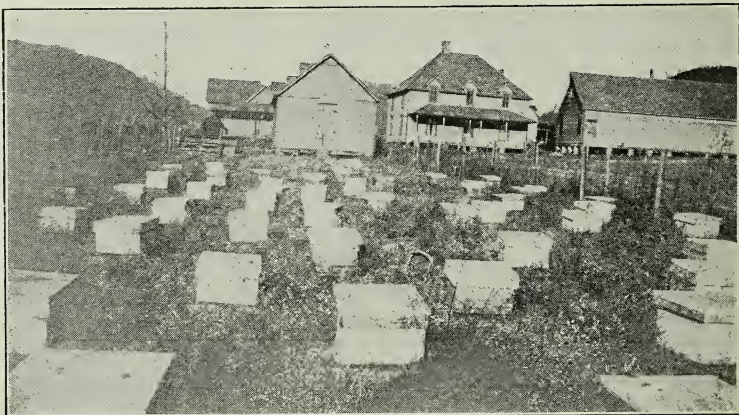
A big retail merchant here, addressing a gathering of merchants recently, said: “We must watch the costs. We must know what it costs us to do business,” and then he went on to elucidate. He is reputed to pay liberal salaries, and he keeps his help, and his remarks had to do with other expenditures. It set me to thinking of our business of honey production and of how little we know or think of costs save of supplies and containers.

Take any of our trade papers and search them for discussions on production costs, and there is scarcely even a hint that anyone thinks of such things. Everything is on equipment and manipulation, on diseases and on stock. Not a word as to what the manipulation under consideration costs in time; not a whisper as to the capital invested in the equipment; nothing as to interest, upkeep, and depreciation. Plenty of discussion as to honey quotations and prices, but no suggestion as to what the honey cost us in dollars and cents. If we do not know what it cost, how can we form any intelligent opinion as to what we should sell it for? Is there any other business which could live on such a basis? Judging by the constantly changing ranks of the beekeepers, it would seem that many drop out of it. Is it because they could not make it pay? Just because you live and have a little money left over at the end of the year, does not mean that you are making money. It does not mean that you are getting a fair return for your time and mus-

cle. And if you took account of the depreciation of your outfit, of interest, etc., you would probably find that you were behind instead of ahead.

Unless we have a pretty clear idea of the cost in cash and in labor of the various operations in production, how can we tell where to improve and cut down? With the present prices for honey this subject may not interest you, but consider the increasing cost of supplies, of transportation charges, of labor, and several other things, and then see if you are not interested in studying your business and finding out where you can reduce expenses. The knowledge of these things seems hard to get; we do not seem to know where to look, how to find out the costs of the various operations, how to estimate depreciation, and the keeping track of the time seems too much bother to most men. As for bookkeeping, outside of a simple account of amount received and paid, scarcely any one knows anything about it.

Some years ago I tried to interest beekeepers in this subject, but only two or three persons made any response. Since then the National Government has been conducting a campaign of education on farm bookkeeping, and perhaps the time is now more propitious for taking up the subject of honey-cost accounting. I asked a number of big producers what it cost them to produce a pound of honey, and the replies ranged from one cent to twenty cents. In most cases I knew it was merely a guess. If you guess it is costing you one cent while it is actually costing you twenty, you will have little trouble “guessing” when and where your finish will be. If you know exactly what it costs you per pound, you will know just how low an offer to accept if competition is sharp, or if the market is overstocked



Prof. Melton's colonies on the campus of Fruitland Institute. Mr. Slattery claims these are the best-kept colonies in Henderson County. From the mountains in the background, sourwood honey is gathered.

FROM THE FIELD OF EXPERIENCE

or sluggish. These high prices are not going to continue indefinitely, and when the pinch comes those men who **know** the costs of every step will know where to save and curtail, where to make changes and improve.

Do you want to know one of the reasons the price of supplies began to advance some years ago? According to the word of one big manufacturer, they had just begun to find out the actual cost of every separate thing they made, and they found that some major things were being sold at a loss. They had put in cost accounting systems. These are expensive but not nearly so costly as losses.

Our business is a complex one, made up of a multitude of details, and it will need the combined thought of many of us to evolve a workable plan of studying costs of all departments of our work and of keeping subsequent track of them. But I believe that it is very much worth our while; in fact, I believe that we must do something of the sort if we are to prosper.

In actual apiary work there are many leaks and many faulty practices, but just how great the loss from them cannot be accurately told until we have actual figures to go by. As an illustration of a common and serious leak, consider the non-productive colonies to be found in most apiaries every season. The outfit they occupy is rather worse than idle capital, because it takes costly labor to look after them and they return little; or worse, they take from the fields nectar which would do us more good if put in the surplus chambers of other colonies.

Who will lead us out of this darkness of ignorance?

Arthur C. Miller.

Providence, R. I.

[If the reader will turn to page 163 of the March, 1919, Gleanings, and also to page 309 of the May issue, he will find that Mr. Kindig offered beekeepers quite definite and valuable help in determining the cost of production. Evidently the beekeepers did not realize their need along this line, for we regret to say that only two replied. This offer was far too important to be so readily thrown aside. We certainly need such help.—Editor.]

A NORTH CAROLINA VIEWPOINT

Defends Bee- and Queen-rearers. Considers Them Fully as Honest as the Buyers

About one bee journal out of two which come to us readers has rather insinuating remarks about the men who raise bees and queens. Some gentlemen discover that they



An apiary of box hives capable of holding 100 pounds of honey and bees, but which Mr. Slattery says have seldom been full. When he purchased these colonies he was told that the bees would die since their owner had recently died. The bees are still alive, however.

are not all honest; and other gentlemen, according to their reports, make similar discoveries. It is my opinion (and I have bought enough queens to have the right to an opinion) that there is more evidence of ignorance as to the necessary elements in successful business and a greater show of greed on the part of the purchasers of bees and queens than on the part of the breeders. More than 99 per cent of the breeders with whom I have done business have tried hard to do a good, square business. It has not always suited my convenience in every detail, but there has been an effort to be square in every case.

Before I had been in the business long I discovered that there were many queens advertised that were so cheap I could not afford them. Why should we who buy queen bees expect that a universal law should be set aside for us, and that we should get something for nothing? When queens are priced at a dollar each, the 60-cent queen does not interest me. She used to do so. I bought a few of that type, and then decided that I would just pay for a good quality of queens, and demand them. The man who sells the cheapest cheap queen may be honest in his intentions, and often is, no doubt; but no man can succeed who has a cheap conception of his business. One breeder advertises a cheap product; a dozen purchasers bite, and want sympathy when they get a bad taste in their mouths. It's their bite; so let them chew till they learn how to bite.

I have found a queen-breeder whose business methods are faultless, and whose bees are high grade. In the beginning of my bee-

FROM THE FIELD OF EXPERIENCE

activities I bought far and wide to sample the bees and the breeders who advertise their wares. I now shall use his queens till he or his bees depart from the high standard that they now hold.

Hendersonville, N. C. J. J. Slattery.



RELATION OF ALSIKE AND BEES

Yield of Alsike Seed Per Acre Strikingly Increased by Proximity to Apiary.

In the spring of 1918, while considering the location of an outyard, a farmer asked me to place some bees in his 40-acre alsike field. He had some relative that told him of the increase in yield due to the proximity of bees. I placed 75 three-pound packages in his field. His yield was three bushels per acre. By inquiry I found that fields more than two miles from bees were not worth threshing that year. This farmer was well pleased, but insisted that there were not enough bees. As he had 40 acres for 1919, and several of his neighbors had sown alsike, I placed 100 old colonies on his farm.

I have made a complete survey of the township, and got all the information from threshers and other sources, concerning

about 80 square miles, giving the location of bees, with the number of colonies, and the location of alsike-clover fields, with acreage and yield.

The accompanying map shows in circles the location of bees, with the number of colonies. The numerator of the fractions represents the number of acres in alsike, and the denominator denotes the number of bushels threshed.

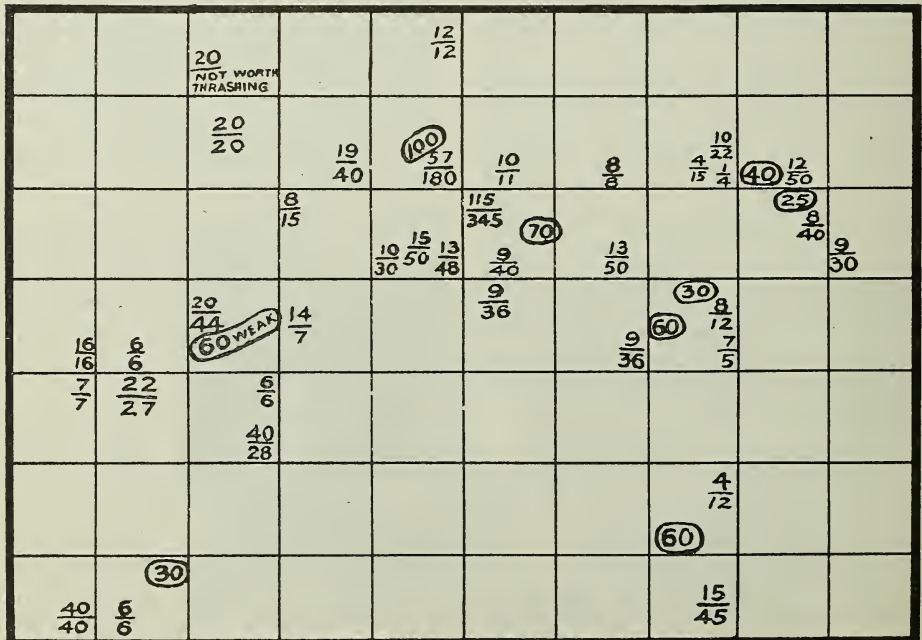
The yield was not heavy at any place, as drought shortened nectar flow at least three weeks. It will be noticed, however, that near a large number of colonies the yield is three to four bushels per acre, while two miles or more from bees the yield is not more than one bushel per acre.

The lesson of this article is interesting to the farmer as well as the apiarist. The farmers near the bees received more cash per acre from the seed than they did from any other crop produced, and at the same time they were storing fertility in their soil.

Another lesson learned is that the majority of farmers are "from Missouri"—they must be shown. Notice the number of alsike fields near some of the bees, while mile after mile where there are no bees there is no alsike. I plead guilty to doing missionary work near my bee-yards.

Grover Hill, O.

Ernest Kohn.



The circles show the location of the colonies. The numerators of the fractions represent the number of acres of alsike and the denominators the number of bushels threshed.

THAT statement concerning feeding both cane and beet sugar in large quantities late in the season, mentioned on page 87 of February Gleanings, was comforting to me, to say the least. It would be of value to know under what conditions sugar had granulated so that large amounts have been removed in the spring. Is it not possible that the feed was granulated honey instead of sugar syrup? We have sometimes had honey granulate badly in the hives during winter.

* * *

It begins to look as tho there might be heavy losses again this winter in the North. The Government weather station at Burlington, Vt., reports January as being one of the coldest on record, and Feb. 1 as having the lowest temperature ever known at that station.

* * *

On page 91 Mr. Parks was undoubtedly right in regard to the apple and peach trees blooming in the fall. J. J. Wilder showed me a peach tree on his place that, he said, always bloomed in the fall. I noticed good-sized peaches on this tree early in April, while other trees were, I think, hardly in bloom.

* * *

There appears to be some discrepancy between the statements of M. C. Richter of California and H. B. Parks of Texas. Mr. Richter says on page 92 that Texas disposes to outside markets 60 per cent of her crop of honey, while Mr. Parks says on page 94 that Texas not only consumes its own crop but imports large amounts from other States.

* * *

Mr. Byer tells us on page 95 that he is not satisfied with his hives' winter entrances, which are narrow and long. He would prefer a higher entrance so as to prevent clogging during our long cold winters. On page 87 of Gleanings for January I gave the size of entrance to the winter cases at Somerset as $\frac{5}{8}$ inch. I learned later that they were $\frac{1}{2}$ inch. In thinking it over since, I have come to the conclusion that I would be unwilling to use in the North a size so small. We have sometimes found them clogged with an entrance $\frac{3}{4}$ inch in size. Maybe, if I had had larger colonies or more packing, it would have worked better.

* * *

Those methods of wiring, given on pages 77, 78, and 79, are certainly of great value where combs sag badly, but we have little trouble where the upper wire is near the top-bar and the next not far below the first wire. I have been wondering if climate has not something to do with combs sagging,

SIFTINGS

J. E. Crane

and if the trouble is not greater in the excessively hot summers of California. We also have our foundation drawn in supers or between old combs

in the brood-chamber. I have had combs drawn from Van Deusen flat foundation in use for 40 years without showing the slightest tendency to sag. And, again, where a hive had become overheated, this same foundation comb would not only sag and settle but go to the bottom of the hive.

* * *

In the everyday language of Virginia, those figures quoted on page 106 by B. F. Kindig from Dr. Merrill are "mighty interesting." A two-story hive in spring has 5,000 more bees than a one-story hive, whether protected or not; and a two-story hive protected will have 25,000 more. One can not help wanting to know more about it. Were the bees counted or weighed or only just estimated?

* * *

Mr. Blackbourne of Melbourne, Aus., on page 86, says we must remember that "The queen lessens her output of eggs a few days before the swarm leaves so that her body may be lightened to enable her to fly." This is the way I used to think, but I have come to think differently of late years; for I find many queens let up on laying and their bodies become light where no preparation is being made by worker bees for swarming.

* * *

My experience corresponds with that of J. H. Lovell, page 91, that elms yield pollen freely and sometimes honeydew but no honey. This by no means proves that they never do. Some plants yield honey in one section and not in another, and sometimes in one season and not in another. [Yes, but Mr. Lovell is an authority on botany not only in his own locality but thruout the United States. See his article on this subject, page 224.—Editor.]

* * *

I was greatly interested in A. I. Root's account, on page 110, of an annual sweet clover. Now, this may or may not prove of great value; but one thing seems certain, that the plant is variable and capable of being changed by the skillful hand of man. As usually grown, it does not appear wholly satisfactory, since the stalk grows coarse and woody. If a variety could be produced that would throw out many more branches, with more leaves, and not run up so tall and woody, it would be an acquisition of immense value, especially where used for hay. (For further discussion of this clover, see page 236 of this issue.)

PLEASE leave that first personal, possessive pronoun just where it is, Mr. Editor. While I cannot claim to be a resident of the Golden State,

and probably never shall be, yet I love it so much that I know the generous Californians will permit me informally to adopt their State.

There is another reason for using the pronoun—my California does not seem to be the place from which some other winter tourists have returned with stories not at all like mine. I know several who were in southern California at the time I was and came away, saying they did not care for it at all. They must have worn dark blue glasses and had indigestion.

Northern winters have their compensations, one of which is the wonderful contrast which spring presents to winter. This glorious transformation from a dead and barren earth to luxuriant growth and blossoming beauty is, of course, missed by all-the-year-around dwellers in warm climates. But our beautiful springs are so disappointingly short. Some years we jump straight out of raw cold weather into a summer heat so great that it is enervating and depressing. And that is precisely why southern California is such a delightful memory to me. Its winter months are not like summer; they are more like our spring, varying from April to May with sometimes a bit of June thrown in for good measure. My ideal year would have three seasons; six months of spring, three months of summer, and three of fall, and California seems to come as near these specifications as any spot on earth.

OUR first and longest stop was made in Los Angeles, from which we drove and made short side trips in many directions. We stayed at a hotel in the heart of the city, for business reasons, and took all our meals out at restaurants. I shall never forget the tonic effect of that bracing, yet soft air which greeted us each morning when we went out to breakfast. Early in the morning a winter suit with turned-up fur collar was very comfortable. Toward noon the air warmed delightfully, and occasionally I longed for a spring suit or coat. Once or twice, in the middle of the day I discarded the winter-suit coat for a scarf and hardly needed that in the sunshine; but in the shade it was apt to be cool, and even the warmest days cooled off so much in the late afternoon that heavy coats were needed again, especially while driving.

Rainy days brought what Californians call cold weather, but it did not seem cold to us after the zero weather of snowbound Ohio. It cools off just enough to make variety in the climate. Personally, I could

MY CALIFORNIA

Stancy Puerden

never live in a tropical climate, but California has just that hint of the tropics which makes it delightful without the enervating effects.

I defy anyone to talk of California five minutes without mentioning flowers. They are everywhere. You can hardly walk a block in Los Angeles or San Francisco without passing a flower stand where flowers are sold at prices ridiculously cheap. You can buy carnations from 15c a dozen up. We have bought the best for 35c at the same time they were selling for about \$3.00 a dozen in Cleveland. Great bunches of violets or pansies were 15c each. There were snapdragons, stocks, marigolds, yellow acacia blossoms, orange-colored poppies, roses, and spring flowering bulbs, such as narcissus. Even if one does not buy the flowers the effect of seeing them everywhere on the street corners and in the open-front stores, which are common in Los Angeles, is cheerful enough to reform a confirmed pessimist.

Almost as fascinating as the flower stores were the markets with their displays of fruits, vegetables, meats, and more flowers. Vegetables of all sorts and even meats seemed much more reasonable in price than back in Ohio, and, of course, there was a wonderful variety of green things which could not be obtained at all at this season in the East.

Out on the country roads in every direction from Los Angeles one passes booths where fruit and flowers, either one or both, were on sale, and often honey was sold at these same booths. I was struck with the fact that oranges and honey sold for just about what they cost in the East. The price of each seems to be standardized. One could also get fascinating glimpses of nurseries and flower ranches as we passed them on our drives.

On the mountains there are also many beautiful wild flowers and blossoming shrubs. I noticed very many geraniums along mountain roads and in the valleys, and a friend told me they started in the first place from bouquets thrown away by tourists.

ONE of the great advantages of California is the rapidity of growth of its trees and shrubs. On account of this, wonderful landscape effects can be obtained in a very short time, and when one builds a new home he does not have to wait long years for his "vine and fig tree." The date palm seems to do particularly well, and there are many fine streets and boulevards beautified by long rows of them. In many cases flower seeds, such as pansies or geraniums, had been sown in the crevices between the trunk and the short stem after

cutting away the dead fronds, thereby making the trunk gay with bright flowers and foliage from the ground up to where the long, graceful, fern-like branches grow. The pepper tree is another graceful shade tree which makes a very quick growth.

A beautiful tree which seems to grow almost equally well in all parts of California is the yellow flowering acacia. At a distance it looks like a tree covered with great gracefully drooping plumes of goldenrod, only it is a paler yellow than goldenrod, a pale lemon yellow with gray-green foliage, about the shade of the foliage of the California poppy. I remember one delightful road leading up from the San Fernando Valley which winds between shade trees of yellow acacia which were literally fountains of bloom when we were there. There were also many of them in beautiful Mill Valley, across the bay from San Francisco, and scattered on the slopes of Mt. Tamalpais.

We were told that it had been an unusually dry winter, that everything was suffering from lack of rain, but I certainly never saw orange groves more beautiful than those from Los Angeles to Riverside. In many the fruit had not been gathered, and the effect of the long rows of large, symmetrical trees with their dark, glossy green foliage, each branch tipped with new leaves, equally glossy and of a pale green, together with the deep color of the navel oranges and the fragrant white blossoms, was so delightful that one could forgive them if they were not useful. But that is just one of the ways in which Nature combines the useful and beautiful in "my California."

Many other fruit trees were beginning to blossom before we left the State on the last of February. The bright pink blossoms of the Japanese cherry form a charming bit of color, and it is much used as an ornamental shrub. Fruit trees were bursting into bloom all the way up to San Francisco, and when, on our way home, we finally climbed the Sierras into winter, there were blossoming peach trees so far up the mountain sides that snow was powdering the ground under them.

THE expression, "all dressed up and nowhere to go," could never be applied to anyone in California. There are always the mountains full of enchantment and illusion and ever-changing beauty. As a San Francisco man said to me, "We can reach the snow by ten hours' ride on the train at any time of the year." At this writing (Mar. 8) when here in Ohio the mercury is way down in the thermometer, when near zero winds are carrying a neighbor's daily paper where he will never read it, when the skies are gray, and there is snow in the air, it strikes me that the California way of receiving and storing snow on the mountain peaks and utilizing it in the summer for irrigating the thirsty land is both sensible and comfortable.

Every city and town seems to have its

easily accessible mountain drives, drives among the foothills and drives into winding canyons. Then there are interesting deserts and still more interesting reclaimed deserts, such as the Imperial Valley with its vast irrigation system and its tropical fruits and immense crops. There are Yosemite Valley, the giant trees, Lake Tahoe among snow-capped peaks, and the ocean beaches.

The vicinity of Los Angeles is a great place for aerodromes as well as moving-picture studios. One can hardly take a drive toward Hollywood, Beverly Hills, or Santa Monica without seeing several aeroplanes in the air at once, and captive balloons are a common sight.

When you run across a number of people in Los Angeles who are conducting themselves oddly, with a man turning the crank of a moving-picture camera, you will know you are seeing a company at work on location. I had a great curiosity to see a bit of picture-making and I did not have to wait long. We ran across them at work a number of times.

Am I in danger of forfeiting the good opinion of some of the nice, highbrow subscribers if I confess to a fondness for good moving pictures? Whether one approves of them or not, the production of moving pictures now ranks as one of the great industries of the world, and the bulk of them are made in the suburbs of Los Angeles.

THE going to places of interest in California is just as pleasant as the arriving, if one drives, because of the wonderful roads. During my first ride out into the country I commented on the remarkably easy riding car and was told it wasn't the car, it was the roads, that even a flivver would ride like a limousine on those roads. They are very wide, wonderfully smooth, almost entirely free from dust, and with a dark surface which is very restful to the eyes. Instead of being unyielding concrete, of which so many are being built in Ohio, those roads seem to have the elastic texture of fine asphalt. It is bliss to ride over them, just about as near flying as one can get without leaving the surface of the earth.

There are over 90,000 miles of improved roads in the State, not all so good as those in the vicinity of Los Angeles, but very good roads. I was told one could start from Portland, Ore., and go clear down to San Diego without going out of high. Of course, they do not have the destructive alternate freezing and thawing which makes the upkeep of roads so expensive in the East and North.

DEAR me, after talking to the extent of some 2,000 words this article is remarkable chiefly for the nice things which I have omitted; just ask any Californian if that is not so. It is a country of infinite variety and beauty, "my California."

APRIL is the first month that breaks over the sunshiny world after the passing of the vernal equinox, after Spring has alighted "tip-toe on a little hill," bearing in one hand a day and in the other a night of equal length—an eager young day, that leads that long procession of other days of April and of May, days of early dawns and late twilights, of flower and sun and fragrance, that grow at last into the brilliant warmth of summer; that night, solemn, silent, in whose train come the shortened but unspeakably lovely nights of midsummer, when, in the words of the English Henley,

"A soul from the honeysuckle strays,
And the nightingale as from prophet heights
Sings to the earth of her million Mays—
Midsummer nights! O midsummer nights!"

And I think that first spring night must look with ecstasy across her star-lit dusk to the first full-circled moon swinging rhythmically after, for then, following swiftly, will come the Easter-tide. Do you know that is how you can tell when Easter is to come? It will fall on the first Sunday after the first full moon after (unless it is on) the 21st of March. This year it will fall on the 4th of April. Perhaps, by the time Gleanings gets into our homes, Easter will have come with her bursting buds and green leaves, her white lilies and her chanted gladness. Tho we have Christianized it, we must remember that it is a festival that belongs primarily to the earth itself, a celebration of the return of flowers and grass and dewy verdure, the rising of fair living things from the tomb of winter. The very name, you know, is pagan, coming as it does from the Saxon goddess Eastre, beloved of our ancestors in those ancient days before the western world had heard of the one who "passed like a vision of beauty athwart the Galilean hills." Aren't you glad the time has gone by when Christian folk felt they must stiffen at the very mention of pagan things? When the old Romans started using their Latin word *paganus*, from which our word "pagan" springs, they meant only a countryman or a rustic, someone, you see, who lived close to the earth, and, lacking bibles and other books, accepted the eternal God-spirit in all the divine ways it came to him—calling it by various names and worshiping it simply. They were seeking God everywhere, as he meant they should, "if haply they might feel after him and find him, tho he is not far from each one of us."

* * *

Because this wonder-working springtime is so soon to be over the earth and in our hearts, my thoughts today go wandering to the apiaries of next month. How lovely they will soon be, with grass greening up

Beekkeeping as a Side Line

Grace Allen

around the hives and bees flashing around and humming. And I am reminded of the vivid picture Maeterlinck paints of a certain apiary across the seas.

With the consent of the editor and the author and all the others, I want to copy that description here, for it carries a double charm, that of the unfamiliar details of far-off scenes and that of long-known and long-loved emotions that arise wherever thoughtful, responsive hearts find sunlit hours and fragrant air and the smiling beauty of the earth.

"I have not forgotten," says the great Maeterlinck—and by the way, William Lyon Phelps, Professor of English Literature at Yale University, made memorable a certain bright February day when three of us motored out Lebanon Pike to Andrew Jackson's old cedar-guarded home, the Hermitage, by saying that he considered Maurice Maeterlinck the greatest of all living writers. "For whom," he challenged, "can we place above him?" "Yes, whom?" we echoed, in flaming agreement, "Whom?"

So, "I have not yet forgotten," begins this greatest of all living writers—essayist, dramatist, poet—"the first apiary I saw, where I learned to love the bees. It was many years ago, in a large village of Dutch Flanders, the sweet and pleasant country whose love for brilliant color rivals that of Zealand even, the concave mirror of Holland; a country that gladly spreads out before us, as so many pretty, thoughtful toys, her illuminated gables, and wagons, and towers; her cupboards and clocks that gleam at the end of the passage; her little trees marshaled in line along quays and canal banks, waiting, one almost might think, for some quiet, beneficent ceremony; her boats and her barges with sculptured poops, her flower-like doors and windows, immaculate dams, and elaborate, many-colored drawbridges; and her little varnished houses, bright as new pottery, from which bell-shaped dames come forth, all a-glitter with silver and gold, to milk the cows in the white-hedged fields, or spread the linen on flowery lawns, cut into patterns of oval and lozenge, and most astoundingly green.

"To this spot, where life would seem more restricted than elsewhere—if it be possible for life indeed to become restricted—a sort of aged philosopher had retired; an old man somewhat akin to Virgil's—

'Man equal to kings, and approaching the gods;'
whereto LaFontaine might have added,—

'And, like the gods, content and at rest.'

Here had he built his refuge, being a little weary; not disgusted, for the large aversions are unknown to the sage; but a little weary of interrogating men, whose answers to the only interesting questions one can put con-

cerning nature and her veritable laws are far less simple than those that are given by animals and plants. His happiness, like the Scythian philosopher's, lay all in the beauties of his garden; and best-loved and visited most often, was the apiary, composed of twelve domes of straw, some of which he had painted a bright pink, and some a clear yellow, but most of all a tender blue; having noticed, long before Sir John Lubbock's demonstration, the bees' fondness for this color.

"These hives stood against the wall of the house, in the angle formed by one of those pleasant and graceful Dutch kitchens whose earthenware dresser, all bright with copper and tin, reflected itself thru the open door on to the peaceful canal. * * *

"Here, as in all places, the hives lent a new meaning to the flowers and the silence, the balm of the air and the rays of the sun. One seemed to have drawn very near to the festival spirit of nature. One was content to rest at this radiant crossroad, where the aerial ways converge and divide that the busy and tuneful bearers of all country perfumes unceasingly travel from dawn unto dusk. One heard the musical voice of the garden, whose loveliest hours revealed their rejoicing soul and sang of their gladness. One came hither, to the school of the bees, to be taught the preoccupations of all-powerful nature, the harmonious concord of the three kingdoms, the indefatigable organization of life, and the lesson of ardent and disinterested work; and another lesson, too, with a moral as good, that the heroic workers taught there, and emphasized, as it were, with the fiery darts of their myriad wings, was to appreciate the somewhat vague savor of leisure, to enjoy the almost unspeakable delights of those immaculate days that revolved on themselves in the fields of space, forming merely a transparent globe, as void of memory as the happiness without alloy." * * *

One day in late January we went out to our country yard, across the contracted entrances of whose hives we had put mouse-excluding wires—three wires to the inch, if I remember correctly (we don't use it here at home, never having been troubled here with mice). As we walked along the rows that day we noticed there were almost no dead bees in front. This was especially surprising, as the few hives at home had rather considerable piles in front of each one. At once we wondered if the wires could be too close and so preventing the bees from dragging out their dead. The entrances were not clogged with them, nor could we see them lying inside. However, to be quite sure, we removed several entrance-contractors and inserted twigs or sticks to rake out whatever dead might be on the floors of the hives. There were not enough to bother with. Evidently up to that time (we have not been to the country-yard since) the bees had just died faster at the home yard than in the one five or six

miles away. I wonder why. There is no particular difference as to windbreaks or other protection. I wonder if there could be that much difference in the honey.

* * *

Once upon a time (away back in the spring of 1917, to be exact) there lived an Intelligent Gentleman who held a respected position in a successful business house. One day a swarm of bees alighted in his yard and his wife got them into a box. The man was delighted. "We shall have bees for a sideline," he declared, and promptly sought a friend who was already a sideline beekeeper. "What do I need besides bees, to be a beekeeper?" he asked. "A modern hive and a bee journal," replied Mr. Allen promptly; and, being persuaded, he sold him a hive. Many months later, "How are the bees?" he asked. "All right, I suppose." "Get any honey?" "No." "Put on a super?" "No." "Been reading bees?" "Well—no." "Hm," said Mr. Allen.

In the spring of 1918, being again persuaded, he sold the man a super, put the foundation in for him, and even put it on the hive. Fall came. "Get any honey?" "No—I don't believe there's any out there," Mr. Allen groaned. "Reading much bee stuff lately?" "Well, no."

And another spring came. The man hunted up Mr. Allen again. "Those bees are all bunched out in front of the hive. What do you reckon's the matter with them?" "I reckon they need room," was the reply. So the man took off a superful of sealed honey gathered the season before. He was delighted. Beekeeping was certainly worth while—look at his honey—and not a bit of trouble. So he became ambitious. "Couldn't I put some of those bees in another hive and have two?" "You could," Mr. Allen admitted, "if you knew how." Whereupon he was invited out to do it. He made up a nucleus, explaining things meantime to his friend, who hovered on the outskirts of the operation, closely veiled and gloved, and in spite of the warm weather, wearing a coat with collar upturned. "And you can add more foundation as they need it," concluded Mr. Allen. "Oh, go ahead and add it yourself," protested the gentleman amiably, "and come on in to dinner."

The moral is merely, Don't be that kind of a sideliner.

* * *

WHO'S DREAMING ME?

A Misty April Fancy

So soft, dear Day, so still and gray
Your magic-dripping mist,
You fold me close in quietness
Too tender to resist.

Around my world your mist lies curled
So clingingly and deep
I feel as tho I were a dream
All wrapped around with sleep.

If dream I be, who's dreaming me
In drowsy mist opaque?
I wonder, too, if I'll come true
When Something shall awake!



FROM NORTH, EAST, WEST AND SOUTH



In Ontario.—With snow still covering the ground at this writing (Mar. 10), prospects look good for the clovers coming thru in good condition. The weather has been steadily cold ever since Dec. 1, and, no doubt, bees will suffer in many cases, especially where they are wintering on natural stores or where stores are deficient. In some parts of southern Ontario the bees had a flight on March 5, but north and east of Toronto no bees have been out since late last October—over four months' steady confinement, with very cold weather all the time for more than three months.

Since last writing, sugar has again advanced another \$2.00 per hundred and is now quoted \$16.71 at Toronto. Where the end is going to be, is still a question. Some dealers, with whom I have talked on the subject, predict lower prices by May, while others say it will go still higher. So, I suppose, one man's guess is as good as another's. I am sorry to say that honey, especially dark grades like buckwheat, is not even holding its own; and for the first time, at least in my experience, honey can be bought wholesale at a lower price than sugar. Just how long this condition will last is a question. In view of the great number of people going into beekeeping, assuming that even the average number make good, as intimated in a recent issue of this journal, something will have to be done in the near future to stabilize marketing and other phases of the business. However, the matter will, I suppose, automatically adjust itself to a certain degree; for, aside from all manipulations of various organizations, I still believe that supply and demand are the chief factors that affect all kinds of merchandising. But that does not say that demand cannot be increased, and to my mind that is the most feasible and legitimate way of helping the business along. Some kind of united effort should be made to place the value of honey before the consuming public; for, altho many families do use honey, unfortunately a much larger number do not recognize it as a food but rather as a luxury or a medicine.

A deputation of Ontario beekeepers recently waited upon the Minister of Agriculture for Ontario, asking an increased grant for inspection work and also for money to start a queen-rearing establishment under the jurisdiction of the Provincial Apiarist, for the purpose of raising Italian queens of a highly resistant strain for use in districts where European foul brood is prevalent or just starting. In many districts black bees are still in evidence, and pure matings are out of the question. During the last few seasons the demand has been so great for good Italian stock that in many cases queens could not be procured, and much loss occurred as a result. It is the purpose, in case the grant is received, to put the proposition

on a self-sustaining basis, as beekeepers will be quite willing to pay a fair price provided they can get the queens. Hon. Mr. Doherty gave the deputation a courteous hearing, and, while promising nothing definite, hopes are entertained that the request will be favorably received. A serious thing just at present is that finances are strained to meet all obligations, and the Government naturally wishes to be very careful in the matter of funds, especially since the election was won largely on a policy of economy and conservation.

Here's hoping that the balmy spring-time will soon be here again; and also a hearty good wish towards one and all of our readers that the busy season ahead may be filled with not only work but good returns for our labor and, above all, with a sense of our duty to the millions of suffering people in the world today, and a profound feeling of gratitude towards the great Creator for allowing us to live in this wonderful place of peace and prosperity, Canada and the United States of America.

Markham, Ont.

J. L. Byer.

* * *

In Iowa.—At the Mitchell County annual meeting at Osage, held recently, plans for the work of the coming year were outlined, which include the co-operative extension work in beekeeping and the establishment of a demonstration apiary. A tentative date, July 10, was also set for the summer meeting.

Many requests are being received from parties who desire to buy bees. People who are becoming interested in bees this year may be divided into three classes; those who have kept bees in the past and failed but have a revived hope, those who know nothing about the work but feel that beekeeping may be a get-rich-quick scheme, and those who are carefully preparing to grow into the business. The first two classes are in for disappointment, as beekeeping requires an ample investment of brains, money, and labor. The beekeeping industry of this State needs more wide-awake honey producers; the nectar is available, and returns can be expected when the business is conducted on a firm basis. But no encouragement is held out to those who want to buy bees and consider such effort sufficient to be rewarded by returns of honey.

From the correspondence it would seem that a very large amount of package bees and nuclei will be purchased in the South. Many have had very satisfactory results with package bees, and the practice of making increase and repairing minor losses by such purchases is rapidly increasing.

Special attention will be given by the Iowa State College to summer meetings with county beekeepers' associations, doing a small portion of the work that had been



FROM NORTH, EAST, WEST AND SOUTH



planned for the beekeepers' school which was to have been held at Ames. The idea is to have the all-day meeting and picnic held at a conveniently located apiary. Special programs will be arranged for these meetings, and in some counties two meetings will be held on successive days. Arrangements for meetings must be made early.

There is still some honey held by a few of the larger producers. A little concern is felt at times over the honey market, but the available honey for trade purposes is comparatively small. There are many people who are now trying to buy honey to supply this trade. Those who have built up a year-around trade seldom have enough honey to supply the increasing demand. To increase properly the use of honey in the homes it will be necessary to supply trade every day in the year. It is much easier to keep a trade than it is to build up one each year. Too many beekeepers fail to study markets, the honey for sale now being in two 60-pound cans, whereas the trade is willing to consume six 10-pound pails. The increased cost of putting honey on the market as is demanded, will be returned. Those who are developing an exclusive trade with a "brand" honey are now looking about for honey to carry them thru the season. It pays to put honey on the market in the manner that the trade desires.

A campaign for "Better Queens" in the colonies in this State has been started by the Iowa State College. The scrub queen is a menace to the industry—banish it. A small amount spent for a good queen will be returned several fold in the honey returns.

Plans are practically completed now for the honey exhibit at the Mid-West Horticultural Show this fall. The outstanding feature of the premium list is a very large prize for the best exhibit by a county association. This is an entirely new feature, and associations are urged to start their plans now for entering a prize-winning exhibit at this show. Prizes for individual exhibitions will be far more attractive than ever before; so every beekeeper will find it worth while to contend for these prizes.

Ames, Iowa.

F. B. Paddock.

* * *

In Northern California.—Our district a month ago reported a very serious shortage of rainfall. The conditions at present have somewhat improved, but the moisture content of the soil is yet far below normal, so that plant growth at this time is backward and does not show its normal vigor. In the northern part of our section the rainfall is about one-third of the normal, and in the southern part is almost half the normal. Altho likewise below normal, southern California has received considerably more than we have. Almonds have now been in bloom

for two or three weeks, and the weather during this time has been exceptionally fine, enabling the bees to build up quickly. Most colonies (those that were left with ample stores) have the equivalent of seven to eight frames of brood today (Mar. 5). The almonds will last about two to three weeks longer, after which time the bees should be in splendid shape to go to either the oranges or the mustard.

Your correspondent notes with satisfaction the editorial on "The New and Old National" in the March number of Gleanings. The criticisms that have been made to the editor are in accord with my remarks in my letter in the February issue of Gleanings. As Western beekeepers, we should consider it absurd to expect our Eastern brothers to help us dispose of our products in their home markets. The East and the West must have some point in common, a problem that concerns both alike, that is, a protective-tariff and not a marketing problem, before a co-operative movement between the two should be considered.

On page 167 of March Gleanings the editor gives the name and address of a Carniolan queen-breeder, one Jan Strgar, and comments that Gleanings knows nothing of Mr. Strgar and, accordingly, will assume no responsibility concerning the information given. In the spring of 1911 the writer purchased from Johann Stregar of Postwocheiner Festriz, Oberkrain, two Carniolan breeding queens. The queens so purchased arrived in due time, and, of all the importations that the writer has received, none have given better satisfaction than the two above-mentioned queens. These queens were 32 days on the trip, were shipped in excellently made cages, and not a single attendant bee in either cage was found dead upon arrival. If Jan Strgar is the same as Johann Stregar, and it seems likely that he is, the writer can heartily recommend him as a Carniolan queen-breeder.

Modesto, Calif.

M. C. Richter.

* * *

In Southern California.—Prospects for honey in southern California have improved very much since my last report. The weather has been warm and balmy, and the rains have been so gentle that every drop has gone into the ground. Some localities report as much as 15 inches of rain for the season, which we consider sufficient to assure some honey.

Many beekeepers are looking for a very early honey flow from the orange and black sage, but much depends upon the weather conditions. Some sage in favored locations is beginning to bloom, and the orange buds are swelling. Bees that have had plenty of stores are generally in good condition, with not any more disease than is usually found at this time of the year.



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Apiarists still continue to move their bees to the orange groves. The last car to arrive from Utah was unloaded late in February at Riverside. Some of our back-country beekeepers who have their bees on the sage and wild-buckwheat locations are moving now, while others will wait until the oranges are just beginning to bloom—which usually occurs the last of March or the beginning of April. The time of moving is a matter of choice with each individual beekeeper. In some cases where there is little else than the citrus trees, pollen is likely to be scarce and brood-rearing conditions not of the best. Therefore, when bees are located on a range where there are good conditions for building up; or, in other words, where there is early bloom such as willow, eucalyptus, or alfilaria, colonies are often allowed to build up before being moved near the orange groves.

Considerable difference of opinion exists among the beekeepers concerning the probability of getting a normal crop of honey from the oranges. I feel safe in saying that never before, in the last 25 years, has there been so much off, or out-of-season bloom on the orange groves of southern California. Whole groves in different localities have been in full bloom at various times since last fall, while one could find considerable bloom at any time. Whether this bloom will make mature fruit and the trees return to normal next year is a matter of conjecture. With one of our heavy honey flows, this off bloom might make but little difference, but with the increased number of honey-gatherers this year, it may make considerable difference in the tonnage.

The Riverside County Beekeepers' Club held its annual meeting in Riverside, Feb. 28. The same officers were elected for another year, namely: R. Powell, president; Chas. Kinzie, vice-president; and Lester Bamberger, 607 Chestnut St., Riverside, secretary-treasurer. Fifty dollars in cash besides donations of hives, foundation, etc., was voted by the club to be given for the French-Belgian Beekeepers' Relief Fund. A committee was appointed to put on a bigger and better exhibit than ever at the Southern California Fair to be held in Riverside next fall. A reservation of 100 feet and cash prizes of \$225.00 were asked for from the fair management.

In getting a colony ready for the honey flow, it is quite necessary that it should have plenty of stores to carry it well into the honey flow. A colony that is found to be queenless or that has a drone-layer, is often of more value if put above a normal colony. Especially is this true, if the normal colony is light in stores and the poor one is well supplied. Sometimes it is advisable to place a good brood-comb between the brood and the comb containing pollen

and honey. We have discontinued the practice of the placing of empty combs directly in the brood-nest. If one has the time, good results are often obtained by placing all sealed brood in the center of the brood-nest and the larvæ and eggs toward the outside. This leaves the hatching bees and empty cells in the center of the hive and keeps the nurse bees near the outside, thereby providing one of the conditions tending toward swarm prevention.

Corona, Calif.

L. L. Andrews.

* * *

In Michigan.—The College Short Course was the surprise of our lives when the registration showed 60 per cent women. Surely modern aspects of beekeeping have broken down old traditions.

The tendency is strongly away from cellar wintering. This is not because beekeepers have less faith in cellars, but because they are learning that many of their cellars are not fit for wintering. David Running surely did a great service to beekeeping when he made public those principles of cellar structure which he found to be essential to the greatest success.

As the result of poor wintering there will be many weak colonies. The common practice of uniting a number of weak colonies in an attempt to make a few strong colonies is very poor beekeeping. Unite the weak colonies with the moderately strong ones. By so doing the average strength of the whole yard is better, and the number of colonies remaining is larger. Before uniting, examine very carefully both colonies for disease. Later on, when the colonies become strong a nucleus can be removed from each one. Thus the original number can be retained and some surplus honey secured.

This month brings to a close the two-day beekeepers' schools. Because of the epidemic of influenza and because of conflicts with other meetings, the original number of 63 schools as planned was cut down to about 40. The interest and enthusiasm everywhere manifested and the fact that so many more persons can be reached, have brought about the decision that hereafter there will be no winter short course at the College, and all our efforts will be along the lines of county schools of instruction. This will be carried on in the summer in the form of one-day outdoor field meetings.

All the traditions of a January thaw were broken down this year, and the cold has continued unabated into March. Up to this time there has been no flight since Nov. 17. On a few days it has warmed up enough so that a few bees came out. In general, only a small part of those bees ever got back into the hives again. Probably,



FROM NORTH, EAST, WEST AND SOUTH



the colonies are better off to be rid of them, as they were the ones which were suffering most from their long confinement. Recent examination of the colonies in several well-kept yards wintered outdoors shows that nearly all colonies are doing well in spite of the fact that they have not had a flight for over three and one-half months. It was very noticeable that those colonies which were run for comb honey last fall are suffering most. Surely, it was a serious mistake to produce comb honey last fall when brood should have been reared in abundance for the winter cluster.

In some parts of Michigan the dandelion and fruit bloom is so abundant that soon after the flow begins the queen becomes crowded and brood-rearing is restricted. Often swarming follows. We cannot afford a restriction in brood-rearing at this time, because whether swarming follows or not it results in less workers for the clover flow. This year if your bees are in one-story hives, try putting another brood-chamber under the first at about the beginning of fruit bloom. This will give the queen an abundance of room and also leave some for storage of honey. In many parts of the State dandelion yields in such abundance as to constitute a source of surplus honey. The reason that it is not usually secured, is either the colonies are too weak, or there is no room in the hive for storing surplus. Each year for the past three, good colonies in the vicinity of Lansing have stored on the average 25 pounds of surplus extracted honey from dandelion. In many counties of the State dandelion would constitute a major honey flow if our bees were strong enough to get it. B. F. Kindig.

East Lansing, Mich.

* * *

In Minnesota.—It was a great disappointment to Minnesota beekeepers that the Short Course which was to have been given at the University Farm by Dr. Phillips and his staff had to be postponed on account of the flu. We understand that it is planned to hold the course some time next fall.

One of our progressive beekeepers, A. W. Knapp, has passed away. He was a good man and loved by all who knew him. Some years ago Mr. Knapp gave up an important position in business life because of failing health and turned his attention to beekeeping. He was a close observer and an enthusiastic beekeeper. We shall miss him at our State and county gatherings.

It seems to be the same old story over again, "faulty census work." As in other States so in Minnesota. The bee and honey industry was passed over by the census takers as of no special importance. We had been told that "higher ups" were looking after the matter to see that the census

blanks contained the necessary questions in order that the fiasco of 1910 might not be repeated. Evidently we were misinformed.

Minnesota beekeepers will probably be able to secure all the sugar they need for spring feeding, provided they are willing to pay the price. The State Department of Agriculture has made a thoro investigation of the sugar situation in the State, and without doubt would have been able to have kept prices down somewhat, had it not been for the confusion caused by inconsistent rulings of the U. S. Department of Justice. The State Department of Agriculture has published the results of its findings in a bulletin. The paragraph which gives the reasons for the varying prices of sugar is exceedingly interesting, but it is too long to give here in full. The closing sentence reads, "In fact with no basic sugar price and no restrictions or regulations by anyone, prices and profits are in a hopeless state of confusion."

Conditions for a good honey flow this year in Minnesota seem to be ideal. There was plenty of moisture when the ground froze in the fall and a heavy coat of snow on the ground all winter. The discouraging side has to do with the condition of the bees. Scarcity of sugar last fall left many colonies with insufficient stores, and many with poor quality of honey. Also the severe cold weather which came before the bees were put in the cellar certainly tends to make matters worse. The demand for bees is large, and it will pay well to give the colonies extra attention this spring. See this column in the April, 1919, number, page 238.

During the past winter we have heard of a number of Minnesota amateur beekeepers who are planning to go into beekeeping on a larger scale. They are planning, of course, to start right. Their attention has been called thru advertisements to the aluminum comb, and now that one of the popular magazines has given a very fascinating "write up" on the subject, we imagine that the amateur who is thinking of increasing the number of his colonies will feel that here is a great opportunity to get combs that are ready for the bees to use and that will not have to be destroyed in case American foul brood overtakes him. Now we suggest that you "prove all things and hold fast that which is good." During the last two seasons the writer has had two of these combs in use in his own apiary and sees no good reason why he should increase the number. These combs were purchased in April, 1918, and it is possible that the comb has been somewhat improved since that date. Anyway, whether that be true or not, we would suggest that the amateur who is planning to use them try only a few to begin with.

Chas. D. Blaker,

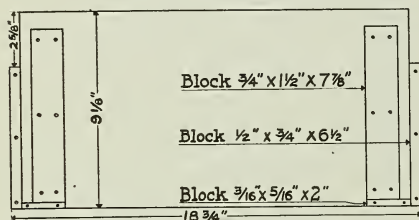
Minneapolis, Minn.

HEADS OF GRAIN FROM DIFFERENT FIELDS

Here is a Good Frame-nailing Device.

I have recently made a frame-nailing device, which I find very convenient and hope it will prove valuable to readers of Gleanings.

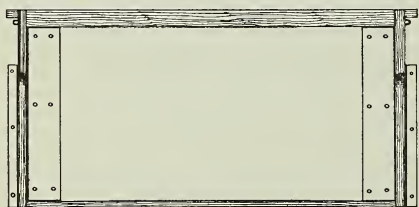
It is made as follows: Take a board $\frac{3}{4}$ inch thick, outside dimensions to correspond with total depth and length of a Hoffman self-spacing frame, cut $\frac{1}{2}$ inch in from the end and $2\frac{5}{8}$ inches down from top at two



Nailing device ready for frame.

corners. Take two pieces $\frac{1}{2} \times \frac{3}{4} \times 6\frac{1}{2}$ inches and nail or screw to board just outside of end-bars of frame; take two pieces $\frac{3}{4} \times 1\frac{1}{8} \times 7\frac{7}{8}$ inches and nail or screw to board just inside of end-bars of frame; take two pieces $\frac{3}{16} \times \frac{5}{16} \times 2$ inches and nail to board with one end to the $\frac{1}{2} \times \frac{3}{4} \times 6\frac{1}{2}$ piece. The board is now complete.

Take the top-bar of frame and lay upside down on the bench with the corner-cut groove away from you; put on end-bars and place in nailing device; turn the board on edge with the top-bar down and nail the bottom-bar; reverse the position of the



Device with frame in place.

board and nail thru the top-bar into the ends; stand the board on end and nail thru the ends into the top-bar; lay the staple block on and drive the staple; grasp the frame with the forefinger, with the thumbs resting on the blocks inside of the frame, and pull the frame from the device. The frame will be rigid with square corners.

West Chester, Pa. L. Clarence Cox.

Loss by Spray Poi- soning or Milkweed?

The majority of beekeepers here last spring lost from 50 to 100 per cent of their bees, unquestionably due to spray poisoning. In my own case I

have not entirely lost any colony, but have noticed a great reduction of bees in all of them.

I attribute my luck (for it is nothing more than luck) to the fact that I had all young queens in my hives, and also that I fed a little to all colonies thru the spring. My idea is doing so was to get a large force of young bees in the hives by the first of July. The result was that I had young bees enough to maintain the colony, even tho the field force were destroyed.

This spraying is a serious thing for both beekeeper and fruit-grower. If they don't spray, the fruit isn't salable. Most orchards have a cover crop of alfalfa. Whether it is the spray falling on the alfalfa blossoms, or whether it is some sweet substance in the lead arsenate, or whether the lead is sweet enough in itself to attract the bees to take the fatal dose, are the main questions here. It is impossible to find a cluster of milkweed without dead and dying bees about it. The bees apparently haven't energy enough to free themselves from the sticky milkweed.

C. H. Ponting.

Prosper, Wash.



Secretion of Nectar Not a Matter of Chance.

Insect-pollinated flowers, as alfalfa, white clover, and buckwheat, may often secrete nectar

freely in one locality and not at all in another; but this is not true of strictly wind-pollinated flowers. The pollen of the alders, birches, poplars, oaks, hickories, beeches, and elms is carried by the wind, and the flowers never produce nectar in any part of the world. They are far better served by the wind than would be possible by insects; for the number of individual trees is so large, the birches forming vast forests, that the flower-visiting insects are not numerous enough to perform properly the work of pollination. Furthermore, as in most of the species the stamens and pistils are in different flower-clusters, in the absence of pollination no seed is produced, since self-pollination is impossible. Thus the secretion of nectar would be of no advantage to the bloom of many hardwood trees, as they are compelled to rely on the wind.

This is also true of the wind-pollinated grasses. Of the several thousand species not one in any part of the world ever secretes nectar. The number of flowers they produce annually is beyond the power of imagination even to picture. It is fortunate, indeed, for humanity that the cereals or grains are wind-pollinated, for there are not flower-visiting insects enough to perform this service for the many millions of acres of corn, wheat, oats, rice, barley, etc.

Wind-pollination is older by many million

HEADS OF GRAIN FROM DIFFERENT FIELDS

years than insect-pollination, and it was not until after insects began to visit flowers that the secretion of nectar became of importance.

J. H. Lovell.

Waldoboro, Me.

Reply to Fowler on Breeding from the Best.

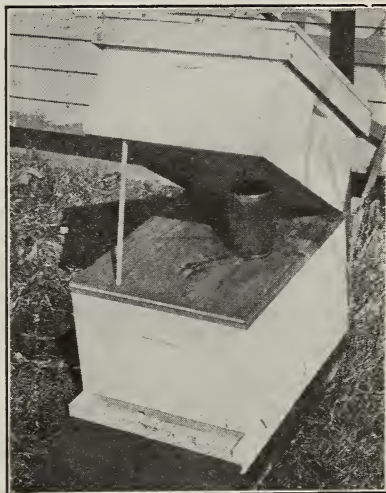
In reply to C. C. Fowler's remarks in the last issue Dr. Miller wishes us to call attention to the fact that if one continually breeds from the best queens, the drones will all have the best grandmothers and will, therefore, be the best drones.—Editor.

How to Handle Pound Packages in Cool Weather

If the weather is cool at the time of arrival, it will be found that the bees from the packages refuse to take the feed from the feeders when the feeders are placed at the entrance or in the lower part of the hive. This difficulty may be overcome by placing the feed above. Prepare the hive with four or five frames of drawn comb or foundation with the entrance contracted and covered with a piece of queen-excluding zinc. Also prepare a Mason fruit jar of feed (one and one-half parts of sugar to one part of water) with 12 to 20 holes pierced in the cap. The holes should just admit a pin. In the inner cover to one side, with an expansion bit, bore a hole $2\frac{7}{8}$ inches in diameter. Set the hive in place, shoving the frames to one

space underneath the feeder. Surrounding the feeder should be placed an empty body, and over this the outer cover.

The bees will soon crawl out of the package and take the feed. After two or three

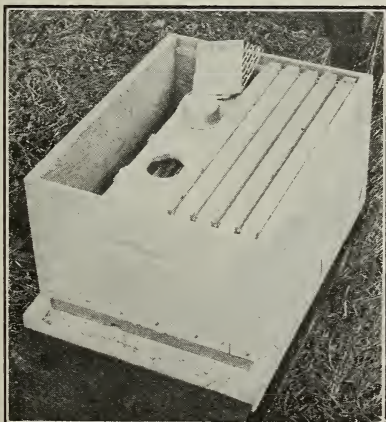


Hive with feeder in place ready for the empty body and outer cover.

feeds if no honey is coming in, change the cap for another one that has three holes. On the next day after arrival a frame of brood, if obtainable, may be given to the bees.

Medina, O.

J. E. Thompson.



The package of bees is placed beside the frames.

side, and place the package of bees beside the frames. Then pry off the lid from the package and sprinkle a few drops of the syrup on the bees and along the top-bar of the frames. Invert the inner cover over the brood-nest and place the feeder in the hole in the cover. There should be a $\frac{1}{4}$ -inch

Points of Decided Interest in a Jamaican Report.

The annual report of the Department of Agriculture of Jamaica states that during the past year 188,000 gallons or 1,175 tons of honey were exported to the United Kingdom at a value of £154,700 (about \$541,450). It is interesting to note that this is greater than either of the two of Jamaica's major products, cacao and coconuts.

Our readers will doubtless remember an article that appeared in Gleanings last July, written by the Government Inspector of Apiaries, Ch. Noel Eddowes, in which were explained the radical measures taken by the government to stamp out American foul brood at its first appearance at Kingston harbor where bees robbed diseased honey from a vessel at anchor. All colonies, the total numbering 1,719, within three miles of Kingston, whether such colonies were diseased or not, were burned, the owners compensated, and no colonies allowed in this area for a year. The government report states that there is every reason to believe this prompt and drastic action has effectively stamped out the disease, and bees will

HEADS OF GRAIN FROM DIFFERENT FIELDS

again be allowed in the prescribed area on Jan. 14, 1920.

During the past two years, for fear of introducing "Isle of Wight" disease, the importation of queens from the United States had been prohibited. This order is now withdrawn.

The better to protect the beekeepers of Jamaica, the Department is considering the appointment of a traveling inspector to promote honey production in all sections of the Island. Also, strict rulings have been made concerning the shipment of honey. All honey on vessels in Kingston harbor must be properly screened from the bees. Foreign honey in port can be shipped only at night. An inspector is to supervise such transship-

ment and water is to be kept constantly sprayed over the exposed casks of honey. In this connection the report mentions that when the Haytian gunboat "Centenaire," which was equipped as a hulk for the storage of Cuban honey in transit, was found, after the honey had been removed, to be thoroly impregnated with infected honey, the government paid the cost of the vessel (about \$1,775) and burned it in August, 1919. The entire amount expended by Jamaica so far in foul-brood eradication is £4,436 (\$16,526).

The report states that there is no foul brood nor other dangerous disease of bees known or suspected to exist in Jamaica at the present time.—Editor.

My Neighbors.—By Bill Melvir

(With apologies to Walt Mason.)

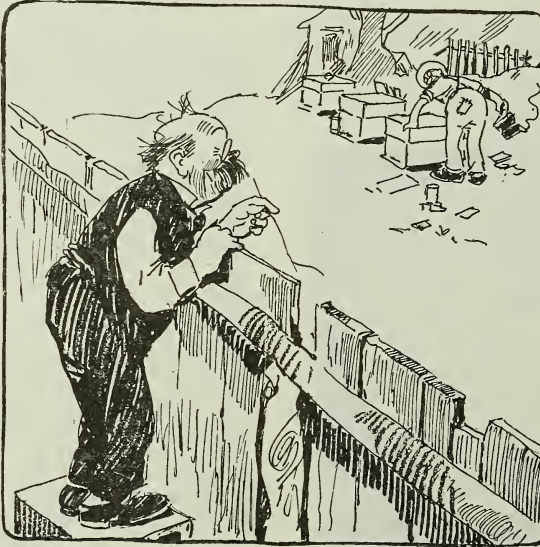
My neighbors are nutty, their noodles are putty, they don't seem to learn anything. In spite of my teaching, exhorting, and preaching, their bees are all paupers this spring. They robbed them last season beyond sense and reason; I marvel they still are alive. Instead of brood rearing, gaunt famine they're fearing, with two pounds of honey per hive. The food is so scanty in their little shanty, they've willies of numerous brand. With omens foreboding and worry corroding, the urge of the spring time is canned. Their future looks gloomy, their eyes have grown rheumy from watching the vanishing stores. They size up the morrow as loaded with sorrow as grimly they do up their chores. The queens are unhappy, the workers are scrappy; they've bolshevik notions galore; compelled to be thriftless they soon become shiftless, assuming the role of the poor.

My neighbors are stingy; their methods are dingy; their bees are ne'er sleek and well fed. Their notions are kinky; their feeders are dinky; so nothing is stored up

ahead. By feeding and fussing, by smearing and mussing, they keep their poor bees just alive. They go out each morning to give the bees warning, then feed them a spoonful per hive! Now, how in creation with such stimulation can brood-rearing boom in the spring?

They're saving a dollar, but later they'll holler, "The season's a failure by Jing!" This bummiest of saving is rapidly paving the way for no honey in June. They'll sure be disgusted and later go busted from feeding their bees with a spoon. Their cheap - john tin feeders and all such impellers, I would to the junk pile consign. Such hand-to-mouth giving is mighty poor living for bees with ambitions like mine. With

opulence reeking, my bees are now seeking to fill ten or twelve frames with brood. With energy boiling, they're buoyantly toiling because they have plenty of food. Fat combs filled with honey makes feeders worth money; they're worth at least two bones a comb. So, loudly I'm preaching the Doolittle teaching of "Millions of honey at home."



QUESTIONS.

(1) The booklet, "Building Up Colonies," contains an extract from Mr. Alexander on "Rearing Queens for Early Increase." On page 11 he speaks of the subject as follows: "Then about May 15 we borrow the bees from several of our strongest colonies for one day to start queen-cells, as is now practiced by Mr. Pratt, etc." How does he "borrow the bees," and how does he start queen-cells in one day? I have raised many queens but do not know how to start queen-cells in one day without queen jelly. By this method can cells be grafted from select stock? (2) Suppose I have a two-story colony, each story having about the same amount of brood. I divide them by inserting an excluder between the two stories. In 10 days I wish to transfer the queen to the queenless portion of the colony. Is it safe to do so without destroying the queen-cells if any are built? (3) Suppose the queen is confined in a cage within her own colony for 10 days may she be released without destroying queen-cells, or even if cells are destroyed may it be done immediately, omitting the regular method of introduction? (4) What is the best way of cleansing old hard propolis from an Alexander honey sieve pail?

Indiana.

H. B. Wilson.

Answers.—(1) On page 494 of the August issue of Gleanings for last year you will find these questions answered in an article on the Pratt or Swarthmore System. Mr. Alexander, when transposing the young larvæ, took up a little food with them, and therefore did not need to use royal jelly from a queen-cell. (2) It may be that you will find no queen-cells have been started; but if any are present, they should be destroyed before the queen is released above. (3) If the queen is confined in a cage within her own colony for 10 days, it would be safer to destroy the cells and introduce in the regular way. Otherwise the queen may be balled. (4) An easy way of cleaning the propolis and wax from an Alexander sieve pail is to immerse the surface in a hot solution of lye.

Question.—Last spring I had a hive that sent out a swarm one day, but they remained only a short time in a cluster when they returned to the parent hive, probably because the queen was not with them. The next day I watched them closely expecting them to swarm again. Fortunately, I was right at the hive when they began to issue. Presently I was surprised to see the queen coming out very reluctantly, being pushed along by the workers. When about two inches from the hive entrance on the alighting board she escaped from her captors and rushed back into the hive, but in a few seconds they pushed her out again, and then I picked her up in my fingers. However, this being the first queen that I had ever held in my hand, I let her escape and she joined the swarm. Now, is it the usual thing for the workers to force the queen out with the swarm or does she usually come out of her own will? I have never seen anything about this subject in the books or journals.

Arkansas.

C. M. Thompson.

Answer.—We have never noticed the bees actually forcing the queen from the entrance. Are you certain the bees deliberate-

GLEANED BY ASKING

Iona Fowls

ly attempted to push her out, or in the bees' mad scramble in leaving the hive, was she unintentionally jostled out of the entrance?

Question.—I was working with a hive one day when I saw the queen on a comb that I was holding in my hands. I called my wife. We watched and admired her as she moved about the comb. She was a beautiful thing and did not appear the least alarmed by being held up to the light to be inspected, but moved about as if nothing unusual was happening. The workers were quietly walking around with her when, to our surprise, she began to deposit eggs in the cells. She would examine a cell and then draw up her abdomen under her and thrust it down into the cell and deposit the egg and then move on to another. This continued for several minutes right there under our eyes while I was holding the frame in my hands. The moving of the frame about did not seem to disconcert her in the least. Do queens often do this or is this an unusual thing?

C. M. Thompson.

Arkansas.

Answer.—Yes, queens may often be seen laying eggs, especially if one has a good strain of Italians and does not smoke them too much. In fact, we have even watched laying workers deposit their eggs and have seen as many as three laying in cells on the same side of the comb, all three laying at the same time.

Question.—"Between the upper and lower hives may be placed a screen" (page 674, October Gleanings). Do you provide an entrance for the nucleus during the two days the screen is between? If so, how?

C. E. Hinds.

Missouri.

Answer.—An entrance is left above at the back of the hive.

ONE ANSWER BY DR. C. C. MILLER.

Question.—Having become satisfied in my own mind that I have discovered and formulated your will-o'-the-wisp, namely, the primary cause of natural swarming of bees, I am writing to tell you about it. I am having this formula as discovery certified with my attorney under date of Jan. 15, 1919, as that is the date I reached my conclusions—not that I expect to make any money out of it, for I do not; and I want every one who is interested to try out plans to make it a success. Swarming is due to the accumulated irregularity of the emergency of brood. To explain, first comes the lack of larvæ to receive the larval food. This, in turn, is due to a decreasing number of eggs laid by the queen, which is due to the scattering condition of vacant cells, and this is due to the accumulated irregularity of the emergency of brood. I am quite satisfied that this explains why Alexander's plurality of queens produced non-swarming colonies. A number of queens could keep up the supply of larvæ, even tho the vacant cells were scattering.

Wisconsin.

Edward H. Burns.

Answer.—Your theory is just a little after the manner of a theory advanced some years ago in Germany, which holds that the nurse bees become too numerous for the brood, or the brood too small in amount for the number of nurse bees, the nurse bees become overloaded with prepared pap, and the use

of excess food goes to rear drones and queens. This, you will see, agrees with your saying, "first comes the lack of larvæ to receive the larval food." Altho there is nothing new about it, not much has been said about it on this side of the water.

Question.—I tried to make some candy for my bees by the recipe in the December Gleanings, and am ashamed to say I read the directions wrong and used a tablespoonful of tartaric acid to twenty pounds of sugar instead of $\frac{1}{4}$ teaspoonful to that amount as directed. Will this extra amount of the acid injure the bees?
Chas. A. Ford.

Virginia.

Answer.—Altho we have never used as much tartaric acid as that, we really do not think that it would cause any trouble, except that it might make the candy a little too soft. For this reason we would prefer to use a harder candy early in the spring, and then when it gets a little warmer use the soft candy, feeding on the bottom-board, at the back of the hive. Early in the spring the bees would probably not take it from the bottom-board, since it would be too cool there; and we do not consider that it would be safe to place it over the tops of the frames, for there would be danger that it might become soft and run down over the bees and brood, killing the brood and possibly stopping up the entrance and smothering the colony. When feeding a soft candy on the bottom-board as we suggest, the hive should be tilted slightly backward so there will be no danger of the entrance's becoming closed. In the next candy that you make we advise that you use only one-third of a teaspoon of tartaric acid for 10 pounds of the candy. Recent experiments have convinced us that this is a better proportion than that given in the December Gleanings.

Question.—A recent issue of the Reading Eagle tells of the plight of a fellow beekeeper, Louis Hermann of Sinking Springs, Pa. A few of his neighbors made a complaint to the mayor because Mr. Hermann's bees, when flying in cold weather, lighted on neighboring washings and soiled the clothing, leaving small yellow spots. Can the court decide that Mr. Hermann must remove his bees to another location? I live in the suburbs and keep 10 colonies for pollenizing my 300 fruit trees. Last summer several complained that my bees damaged their peaches, but they agreed with me that they had more peaches last year than they ever had before. I therefore claim my bees are no nuisance. If my bees prove profitable, I had intended to increase, but do not care to if there is a likelihood of my being compelled to get rid of them for damaging fruit or soiling clothing.

Pennsylvania.

Andrew M. Seibert.

Answer.—There have been many instances in which suit has been brought against some beekeeper whose bees have troubled his neighbors. In such cases the beekeeper usually wins the suit. We don't think anyone should be deterred from keeping bees simply because of the possibility of a neighbor's complaining. If the beekeeper will take reasonable precautions he can usually avoid any such trouble. The fruitmen in your locality will, doubtless, within a short time become convinced that your bees are

really a help to them; and, as for the other instance you mention, if the bees have had no flight for some time, and then the weather turns warm on wash day, it would be a good policy for the beekeeper to caution the near neighbors, advising them not to hang out the wash during the warm hours of that particular day when the bees are flying. If he explains that this sort of thing occurs only at rare intervals, and that he is very sorry that it has been on wash day, we believe he will find his neighbors quite reasonable. We have known of many beekeepers who kept colonies in town for years and yet continued on the best of terms with their neighbors. In general, we may say that most of the trouble with neighbors may be foreseen and avoided.

Question.—Do you think May 1 would be too early to order package bees?

Wisconsin.

E. K. Chappey.

Answer.—The bees should be ordered as early as possible, and May 1 is none too soon to receive them. Altho it is not necessary to give them brood, yet a little brood helps them wonderfully in building up. If you could get the bees by the middle of April, or a little later, we believe you will be able to build them up in time for your clover flow.

ANSWER BY E. R. ROOT.

Question.—From what you say in Gleanings I understand that combs with foundation splints will not do for extracting-combs. I didn't know that, and so have been using them for extracting. Will you kindly tell us how you found out they cannot be used in that way?

Illinois.

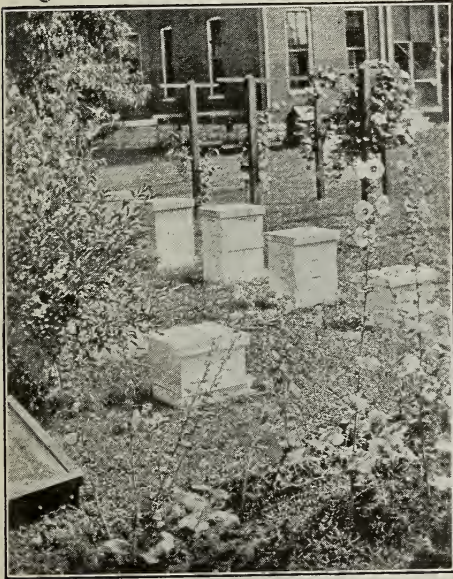
C. C. Miller.

Answer.—I can readily understand why you have no trouble with your frames having splints for hand-extracting. You have a hand-driven two-frame extractor, and at your age, you would not be handling the combs very roughly. I had in mind combs handled by a power extractor, running at a high rate of speed, and speed that breaks many combs that are fully wired. While your splints pass thru the bottom-bar, I do not think they have any other attachment to the frame itself. You can see how it would not be possible to use a splinted frame where power extractors are in use operated by careless and indifferent help. My objection to splints has been that while they provide against vertical sagging they do not hold the combs in the frames as securely as wires; but, for your purpose, they would be just as good and better. I have seen many combs broken in large extracting-yards, even when they were well wired. A splinted comb would stand little show in such cases. Power machines are built to stand a much higher speed than is possible to get out of a hand-driven machine. Beekeepers who run large yards run their combs to almost the breaking point. For that reason they want wires fastened to the frames. I know of no large extracted-honey producer who uses wood splints. [See page 210 of this issue where Dr. Miller has the last word.—Editor.]

IN our first lesson we indicated briefly the different ways in which one may purchase bees. This was only to help the beginner in making his plans for obtaining the colonies. In the spring as soon as a little honey is coming in and the bees flying freely, probably May in Northern States, the colonies may be obtained and taken home. It is, therefore, necessary at this time to explain a little more fully concerning their purchase.

How to Purchase.

It will be remembered that we strongly advise the purchase of good colonies in good hives, if possible, otherwise good colonies in poor hives or swarms to be hived in the beginner's new hives, or pound packages of bees. Whenever combs are purchased



Good colonies in good hives.

with the bees, an experienced beekeeper should be taken along with the beginner to decide on the value of the colony and whether or not the bees are healthy.

If in healthy condition, their value will depend entirely upon the size of the colony; the age, prolificness, and strain of the queen; the condition of the combs, whether crooked, or full of drone cells, etc.; the amount of stores contained in the combs; and the condition and style of the hive.

Pound Packages.

If obliged to buy from a distance, the safest and best way is to buy the two- or three-pound packages, which are wood and

TALKS TO BEGINNERS

By Iona Fowls

wire cages containing bees but no frames nor combs. A smaller package than two pounds should not be purchased. With each package should be order-

ed a queen to be introduced by the shipper. In the North such packages, if obtained in April or May, are easily built up into good colonies if one follows the directions that accompany the package. Also see page 205 of this issue.

The packages must, of course, be kept supplied with stores until the honey flow. It is to be hoped that the beginner may purchase at least one full colony from which he may take one frame of sealed brood to give his package-bees. Also, if they can be given frames of comb instead of frames of foundation, they will build up much more rapidly. A two-pound package should have at least four combs, and three-pound packages six. More may be added later as the small colony increases in size. These combs should be shoved over to the side of the hive and a division-board placed at the inside. Crowding the frames over to one side like this gives a smaller space for the bees to keep warm and, therefore, results in less danger of the brood's chilling on cool nights. Also, the hive entrance should be contracted to but a small opening and covered with the piece of queen-excluder that comes with the package. The use of the excluder prevents the nucleus from swarming out and leaving, and the contraction of the entrance keeps the brood from chilling and prevents robbers from entering the hive. Bees from other colonies near sometimes overpower a small nucleus and steal their stores; but, with a small entrance $\frac{3}{8}$ by $\frac{1}{2}$ inch, the bees of the nucleus can more easily repel such unprincipled invaders. Of course, after the colony builds up a little, the entrance may be somewhat enlarged.

Good Colonies in Old Hives.

Sometimes it is possible to buy good colonies in old hives so neglected that the combs are built all crisscross and are quite immovable. The main objection to such a purchase is the trouble of transferring into new hives and the danger that the combs may be contaminated with foul brood (a disease that affects the brood only). If the combs are immovable, they cannot be examined to make certain that the brood is all right.

For the sake of those, however, who may feel obliged to buy in this sight-and-unseen way, we shall explain later how such colonies may be moved home and transferred to modern hives.

Buying Swarms.

Very good colonies may sometimes be secured at a low price by leaving hives containing necessary fixtures with some farmer

beekeeper, with the understanding that whenever the bees swarm, the farmer will have such swarms in these hives and keep them for the beginner until he finds time to take them home. Yet, in this case, the farmer's colonies might not swarm early enough, and the beginner, therefore, not obtain his bees soon enough to start beekeeping at the first of the season and might obtain but little honey the first year.

Good Colonies in Good Hives.

The very best way of all to purchase bees is to buy them from a reliable breeder or from some beekeeper near home, and to buy entire colonies in good standard hives. Under prevailing prices, the cost may seem rather high, but in comparison with the other ways of buying we believe the beginner will find buying good colonies in good modern hives by far the best investment.

Moving the Colonies.

After purchasing the colonies, the next problem is to get them home. Now, when bees first fly in the spring they circle about the hive, marking its exact location in regard to its surroundings. Later, if the hive is moved a short distance, the bees, not realizing that their hive has been moved, will return to the same spot and, being unable to find the hive, are lost. With the exception of bees in a swarming condition, those colonies moved less than a mile will generally lose many of their bees. For this reason, certain precautions must be taken when moving bees.

If one wishes to move from some near neighbor, only a short distance, the hive should be moved to a place two or three miles away. Then, a few weeks later, after the bees have forgotten their first location, the hive may be moved to the desired spot with no loss of bees. If one wishes to move but a few feet, this may be done with less trouble. Simply move the hive a foot or so the first day, and then every two or three days increase the distance until they are moved a yard or more at a time. The bees seem to get into the habit of expecting their hive to be removed a little further each day.

When necessary to move some distance, the quickest and easiest way is by auto. Sudden lurching or jerking of the combs sideways might cause them to break, especially if heavy with honey. Therefore, if the road is very rough so that one is obliged to drive slowly, the hives should be placed with the frames crosswise of the car. If driven carefully there is little danger of breaking the combs. When moved a distance, the hives must be specially prepared for the journey in order that they may be well ventilated during the trip.

If care is taken, colonies may be prepared for moving without one bee leaving its hive. The night before or early in the morning before the bees are stirring, remove the entrance-closer and into the entrance shove a stiff piece of screen about three inches by the width of the hive. It should

fit tight so that not a single bee can escape. Next, the cover should be gently removed, and a rim two inches deep, covered with wire screen, should be stapled to the hive in place of the cover. This two-inch rim leaves a nice clustering place over the cluster and provides plenty of ventilation, which is so necessary for moving safely; for during joltings of the journey the bees will become so active that the temperature of the hive will be increased considerably, and unless an unusual amount of ventilation is supplied the colony may smother. If moved early while the weather is still cool, they will need less ventilation and the screens may be partly covered if desired. The screened rims and bottoms may be attached to the hives by a long staple at each corner.

When buying bees in old, out-of-date hives, with cracks here and there, special care should be taken to shut the bees in securely and still leave them with plenty of ventilation.

Where to Put the Bees.

On reaching home the colonies may be placed in any convenient place where there



Purchasing such a swarm as this is not a bad investment.

is protection from prevailing winds and where there is some shade during the hottest part of the day. Bees always resent the presence of moving objects near their entrance. Therefore, their hive should face away from any path where people are passing frequently. If one is crowded for room, it is possible to keep bees in the attic or on a flat roof, altho this is a rather hot arrangement for both beekeeper and bees. If kept

in the attic the hive should be near the wall and should be provided with an outside entrance. Also there should be a window that can be opened for the escape of bees that collect on it whenever the hive is opened.

If possible, however, the bees should be placed outdoors, and the beginner will, we are sure, take pleasure in making the spot out in the garden or orchard a real beauty spot.

First Work.

No great amount of courage is necessary

for opening a hive if one is prepared with his bee-veil and lighted smoker and takes care to remember that bees particularly object to quick motions and sudden jarrings. The hive should never be approached at the front, but always at the back or side. One or two gentle puffs of smoke at the entrance will give the sentinel bees stationed at the entrance a little warning of your means of defence. Carefully remove the outer cover and with the hive-tool inserted at the corner between the inner cover and the hive, gently pry the cover, breaking the propolis with which the bees have cemented the cover tight. Thru the slight crack thus made blow a gentle puff of smoke over the tops of the frames. This smoke will confuse some of the bees so they will be less likely to sting; but most of them will be driven down from the top and will gorge themselves with honey, after which they will prove better natured and more easily handled.

To remove a frame, select the second or third from the side where the queen is less likely to be found; for, if the queen happens to be on the first comb removed, she may be crushed or injured in withdrawing the frame. Place the curved end of the tool between the ends of the top-bars and gently pry one frame loose from its neighbors. Also loosen the opposite end and with the curved end of the tool lift the frame just enough so that the fingers of the left hand may easily grasp the end of the top-bar. Then take the opposite end with the right hand and slowly lift the frame straight up. Frames should be held in a vertical position. When held at an angle or horizontally, the comb is more likely to break from the frame, and the queen also is more likely to fall and be injured, since in that position it is more difficult for a laying queen to keep her footing. When handling the frames, the smoker should be used only enough to keep the bees under control. A few gentle puffs is all that is necessary.

After placing the colonies, the screens on top should be replaced by covers and the entrance-screens removed. The colonies will be rather warm from the excitement of the journey and will need sufficient ventilation; but, if too large an entrance is left, robber bees would be likely to attack them, and in their defenceless condition they would have little chance of repelling the robbers. Probably, an entrance of $\frac{3}{8}$ by 8 inches would be about right. The next day or so if it is found that they are short of stores, the cover should be removed, an empty super placed over the brood-chamber, and a cake of candy left on top of the frames. The candy and the tops of the frames should then be covered warmly with burlap or carpet, and the cover replaced. The colonies should all be kept supplied with plenty of stores from now until the honey flow so that they will be in the best possible condition at the opening of the flow. A good candy recipe is as follows:

Put ten parts of granulated sugar in a granite dish and add one part of water. Place the dish over a fire and keep stirring until the sugar is all dissolved. Then bring the syrup to a boil and, without stirring, keep it boiling. Care should be taken not to scorch the candy. When done a spoonful of it dipped up and slowly poured into cold water will form a fine string which is hard and brittle. At this stage the syrup should be removed immediately and poured into paper pie-plates, which have been placed where they are to stand without being disturbed until the candy is cold. Do not scrape the dish when pouring out the syrup. The candy when cold will be hard and transparent, and may then be placed on the brood-frames upside down directly over the cluster.

Transferring from Old Hives.

Those who have purchased colonies in old hives will want to transfer them to modern hives as soon as possible. This work should be done on a pleasant day during fruit bloom or other honey flow when many of the bees are out after nectar. The old method of cutting the worker comb out of the frames and tying it into the new ones is very troublesome, and we do not recommend it to the beginner. The following is a much easier way:

Remove the old hive from its stand, and in its place put a new hive facing in the same direction, and filled with frames of foundation or, preferably, drawn comb. There should be one comb containing a patch of young larvæ (unhatched bees which look like little white worms). If one has no full colonies from which to take this comb with larvæ, he may, with a little trouble, get a piece of comb containing such larvæ from the old hive. After smoking the colony a little, remove the bottom-board and place the old hive over the new, tacking strips on the old hive, if necessary, so that there will be no open cracks between the two hives. Then blow smoke down thru the old story, gradually driving the bees and queen below, after which insert a queen-excluder between the two hives. A few days later examine the lower story to see whether the queen has begun laying below. If not, it is probable she is still in the upper story. To get her below, again place the old hive of brood over the lower hive, leaving out the excluder, and again drive the bees below with smoke, making certain this time that the queen also goes with the bees. Then insert the queen-excluder between the two hives, being sure to leave the excluder right (deep) side up. In 24 days after the queen has been driven below, the brood will all be hatched from the old hive, when it may be removed, and the combs saved to be rendered into wax.

In our next issue we shall describe at some length the inhabitants of the hive and also give directions for important spring work.

THE meeting of the National Beekeepers' Convention at Buffalo, N. Y., Mar. 9 to 11, and the merging of this old organization into the new American Honey Producers' League, has been the big news event in American beekeeping affairs the last month. Accordingly, the Editor of Gleanings in Bee Culture asked a number of those present at the Buffalo convention to report their views and opinions of what took place there. The reports of B. F. Kindig, last president of the old National, of O. L. Hershiser, president of the N. Y. State Association of Beekeepers' Societies, and of R. F. Holtermann, prominent Ontario beekeeper, were the only reports received in time to print in this number of Gleanings, and are as follows:

As Reported by B. F. Kindig.

The program of the National Beekeepers' Association Convention which was held at Buffalo Mar. 9-11, 1920, was carried out as printed with but few exceptions. Thruout all of the program it was evident that one of the chief points of interest to those attending the convention was the new organization, the American Honey Producers' League. The League and its aims and possibilities were thoroly discussed by Kenneth Hawkins of the G. B. Lewis Company, C. F. Muth of the Fred Muth Company, E. G. Le-Sturgeon, president of the League, and by many others who gave their opinions concerning it. From the beginning of the session it was evident that the League had found favor with the honey producers. Without an exception, the beekeepers voiced the sentiment that the time had come to abandon the National Association and support the League. There were those present who did not express this sentiment, but they were not beekeepers. The following resolution was presented:

Whereas, the American Honey Producers' League, organized at Kansas City on Jan. 6 and 7, 1920, practically covers the aims and the purposes of the National Beekeepers' Association; and

Whereas, Under these conditions the two organizations will weaken each other by working apart, altho in a parallel way; and

Whereas, the American Honey Producers' League by its name and purposes covers a greater scope; therefore be it

Resolved: That the National Beekeepers' Association hereby merges itself into the American Honey Producers' League and authorizes its Board of Directors to wind up its affairs and cancel its charter.

This resolution was opposed only by Dr. E. F. Phillips, whose contention was that the League is premature and that its organization should be deferred until the amount of honey produced by American beekeepers is very largely increased. However,



the resolution passed without a dissenting vote.

A committee from the New York State Beekeepers' Association were present for the

purpose of learning more regarding the aims and purposes of the League. After thoroly informing themselves regarding these matters the committee decided that their association should affiliate itself with the League and applied to the secretary for membership. As it was decided that the National Association should merge itself with the League, no officers were elected and no further business was transacted.

B. F. Kindig.

As Reported by Orel L. Hershiser.

The National Beekeepers' Association, which convened at the Statler Hotel, Buffalo, N. Y., on March 9, for a three-day convention, was the occasion of a frank and exhaustive discussion of the newly organized American Honey Producers' League—particularly as to its aims, purposes, the activities it contemplates, and its legal aspects. It was made plain that no activities are contemplated that would be illegal and particularly that would be in contravention of the Sherman anti-trust law. Its advocates were so impressive that some who came to the convention in a doubting mood were finally won over to its support, and at the last there is no doubt but that a feeling of enthusiasm and optimism for the League was very prevalent.

The New York State Association of Beekeepers' Societies was represented at the convention by a committee of five, with power to act, viz: Chairman O. W. Bedell, S. D. House, C. B. Howard, A. Coggsall, and O. L. Hershiser. This committee was of popular selection and was appointed at the New York State convention in January last, after ascertaining the pleasure of the delegates by ballot. It was thought that the personnel of the committee fairly represented the interests and sentiments of the beekeepers of the State. It may be said that in the minds of the committee there was a feeling of doubt and a disposition to be extremely careful; but all approached the matter with open minds, laying all prejudice aside. All salient phases of the new organization were pointedly and frankly discussed in the committee room, and the result was a unanimous decision to join and support the League.

The keynote of the supporters of the League was that there must be an absolutely unselfish and brotherly spirit of co-operation, in which the greatest good for all would result in the greatest good for each individual. With that sentiment carried into effect and with cordial support backed by dollars, success seems to be assured. The accomplishment of these objects is what is

expected of the League and with faith in that expectation we indicated our willingness to join it.

As to the old National Beekeepers' Association, the conviction was very apparent that it had outlived its usefulness. Personally I regretted to see it go, but no good reason could be advanced for its continuation. The committee on nominations for new officers for the Association was obliged to report that new officers could not be elected this year on account of constitutional limitations. It had lost all its support, and no one could doubt but that it was a thing of the past. As its name had been changed repeatedly there seemed no valid reason for not making the final change, and it was finally voted to merge the National Beekeepers' Association into the American Honey Producers' League. Orel L. Hershiser.

As Reported by R. F. Holtermann.

After having written pages of manuscript to cover the proceedings of the last National Convention and finding it one of the most difficult conventions I ever attempted to report, I decided that in the available space I could not do justice to all the speakers and therefore decided to give the general impression which the convention left upon those who attended.

For a National Convention the attendance was painfully small. Fifty to seventy-five was the outside number present, and man after man expressed disappointment at the attendance; but the proceedings were of a high order, and it was felt that the interest in the organization could not be measured by the number present.

Next, I believe those present were absolutely unanimously of the opinion that the National could not sell the United States honey crop in a co-operative way.

On the other hand they appeared to be just as confident that the Union could co-operate in directing the distribution of the honey crop, thus preventing congestion in one city or center and the neglect of markets in other directions. B. F. Kindig, president of the National, and E. G. LeStourgeon, president of the League, showed themselves able officers, and in their addresses set forth in a convincing way the feasibility of co-operation.

The best address given, setting forth the aims of the organization, was probably that of Mr. LeStourgeon. He stated that co-operation could be carried out along such lines as distribution, compelling express companies to make good damage done to goods, railway rates on honey and wax, ordering bee supplies, etc.

It was also pretty well settled that as the National was a legally incorporated body it could not extend its activities outside of the United States.

C. F. Muth pledged the support of their company as also did the G. B. Lewis Co. thru Kenneth Hawkins. C. P. Dadant promised

the support and sympathy of the American Bee Journal. A. L. Boyden of the A. I. Root Co. stated that their company and Gleanings in Bee Culture could be depended upon to give the help and publicity to the movement that they had always given.

Dr. E. F. Phillips of Washington stated that their department was not in a position to enter into this movement. The Department was not there for that purpose. He doubted if the minimum amount required, \$10,000 per annum, could be raised to carry on the work. It is up to the beekeepers to prove or disprove the correctness of this estimate. R. F. Holtermann.

* * *

The 29th annual meeting of the Connecticut Beekeepers' Association will be held at room 72, fourth floor, State Capitol, Hartford, Conn., on Saturday, April 3, 1920, beginning at 10 a. m. One of the papers to be read will be "For the Small Apiary, Comb, Extracted Honey, or Both? How to Produce the Most of Each," by Arthur C. Miller of Providence, R. I. Geo. W. Schofield of Berlin and J. W. Barker of Waterbury will also read papers. L. Wayne Adams of 15 Warner Street, Hartford, Conn., is secretary.

* * *

A telegram from J. T. Calvert of The A. I. Root Co., dated at Los Angeles, March 22, gives the following very encouraging news as to the prospects for a good honey crop in California: "Heavy general rains this morning continuing tonight still further assure the honey crop this season from sage. Oranges already in bloom give promise of continuing longer than usual from present conditions. With continued favorable conditions this should be much better than last year and above the average for California."

* * *

E. R. Root recently attended two important conventions in the West. First, at Wichita, Kans., on Feb. 16. On account of the prevalence of influenza, the attendance was not quite as large as was expected, but about 75 beekeepers were present. Mr. Root was given the floor at each of the sessions. It developed that the whole Arkansas Valley is becoming very enthusiastic over the future of the bee business. The attendance at the Salt Lake convention was likewise less than expected, also on account of influenza, but as reported elsewhere the meeting may go down into history as the most important ever held in the Rocky Mountain districts. At one of the sessions it developed that the Ventura method of wiring as described on page 78, February Gleanings, originated in Utah. W. B. Parker of Emery and Thomas B. Chantry of Wellington have used this method for years. They confirmed all that Mr. Root said to the effect that the brood would go clear to the top-bars when the frames were properly wired, thus increasing the capacity of the hive.

FOR some time I have been wondering why people persist in carrying large sums of money around on their persons. Scarcely a daily paper comes out without some account of a hold-up; and in most cases it happens that the victim had been guilty of carrying



Lead us not into temptation.—MATT. 6:13.
Thou shalt love thy neighbor as thyself.—MATT. 19:19.
The love of money is the root of all evil.—1 TIM. 6:10.

money around in his pocket, when, so far as I can see, there was no need of it. I have been wondering why the editors of our various periodicals do not come out in open protest. The mayors of our cities, our police, and all public officers should come out in a loud protest against keeping money anywhere except in a bank. Concealing money somewhere in the home is so frequent, or has been so frequent, that when burglars get wind that a considerable sum is hidden somewhere they tear the house all to pieces in order to find the "hidden treasure." Not only the accumulated savings of men for years, but the hard earnings of women also are gone in just one night, and, what is of still greater import than money, there is sometimes the loss of life.

With this preface I give below an article which I furnished for our county paper:

RATS, ROBBERS, AND "THE ROOT OF ALL EVIL."

Editor Gazette:—It pains me until I can stand it no longer when I continually see mention made in the papers of people—mostly good hard-working people—who persist in carrying their money about in their pockets, say hundreds of dollars and sometimes even thousands. And then, worse still, they "lug it home" and keep it over night when there is no need of it at all. The banks all over the land are made to keep money and keep it safely; and yet our poor mistaken deluded men—yes, and women too—will keep their hard earnings, maybe the accumulations of years, hidden away somewhere in the home. Put your money in the bank and keep it in the bank; and when you want to pay somebody, let the money still stay in the bank and make out a simple check for it to give to the person you owe. Every bank will give you a little check book full of blank checks; and it is a very simple matter to pull out a check and sign your name to it.

In the last issue of the *Gazette* we are told of a hard-working farmer who, after selling his wheat crop, put the money in the bank all right; and then for some reason which I can not understand he took this money out of the bank and put it in his pocket. He was waylaid by four masked men who, by some means, knew he was going to take his money out of the bank, and laid their plans accordingly.

Just a few days ago I heard of another hard-

working farmer who, it was said, took his money out of the bank to buy stock of the Root Co. But he took it home first to keep it over night and a part of it was stolen. Now, maybe this was just gossip, but it does not matter. It illustrates the point. The Root Co. does not want money. We very much prefer a check on the bank. If you bring us the money somebody has got to "lug" it up to the

bank and thus incur another risk. Let me digress a little.

Two or three years ago a careful estimate showed that rats rob the people of the United States of one hundred million dollars annually; and our experiment stations and agricultural papers have been urging cement floors for all farm buildings, so there will be no place for the rats to locate under the floor of any building on the farm. Then they urge that all rubbish be removed, having no place left where a rat can skulk and hide. Give the rat terrier or the faithful household cat a good chance to win out in the chase, and pretty soon the rats will decide that the locality is unhealthy for rats and mice.

Some years ago I visited a nice farm home, just recently finished. The proprietor showed us all over the place with pride. He said something like this:

"Mr. Root, there is not a spot on the whole premises where a rat or mouse can hide."

Then he showed us the kitchen and pantry and washroom, and said, "Not only that, we have tried to fence off flies. We do not leave a particle of anything lying around loose for flies to live on. The result is, they are starved out. There are no flies around here."

Do you see the point, friends? We want to wind up "this carnival of crime" that is now cursing not only our State and nation, but out-of-the-way Medina. Do not carry any money around with you at all except just enough for personal needs. Pay by check.

As good and wise a man as E. R. Root some years ago went away from home and almost missed the train. It was about to start. He rushed into the ticket office, got his ticket, and ran for the train just starting. In his hurry he crammed his roll of bills into any pocket that was handiest, deciding he would straighten it out when he got on the train. Well, he never "straightened out" that money, because when he, half out of breath, put his hand in that same pocket, there was not any money there. One of the fellows who were probably watching around the ticket office for just such contingencies saved him the trouble of straightening it out.

When you are obliged to carry money put it in some inside pocket where the thief will have trouble in reaching it. When you expect to use some part of it for some particular purpose, sort out just the amount you need, and no more, and be ready to make change, and make it quickly.

Some one may suggest that the banks will break or be burglarized—yes, even in broad daylight, as has happened in the last few days so many times. My reply is that, may God be praised, banks do not break now as they did in times past or since national banks were organized. In regard to holdups

in the day time as well as night, all up-to-date banks are *insured*, just as you have your house and barn insured; and you may be sure they are safe-guarded now in a way they never were before since the world began. Do not be afraid of your banks nor of your bankers. They are your personal friends, and would be still more so if you would stop carrying your money around in your pockets.

I was going to say something about baiting "rats and robbers" by lugging around diamonds, high-priced watches, etc.; but this paper is already long enough. Now, friends, shall we not join in a crusade to starve robbers as well as rats and mice? Keep away the temptation. Your old friend.

A. I. ROOT.

Later.—I have just come across the following from the *Plain Dealer* of Oct. 25th:

BROTHER'S SAVINGS STOLEN.

Mrs. Michalina Lewicka, 6919 Gertrude Avenue S. E., saved \$950 for her brother, she told police, and had put the money under a clothes basket. In her absence, she said, the money was stolen.

If this were an isolated case, it would not matter; but, my good friends, if you will scan our daily papers you will find it is almost a daily occurrence. This poor woman had probably labored for months and possibly for years to lay up \$950, and then unwisely left it "under a clothes basket." Paul said, ages ago, "If meat maketh my brother to offend I will eat no meat while the world standeth." Now, if leaving money, the accumulations, perhaps, of a lifetime, around loose does not "make my brother to offend," what *does* it do?

ELECTRIC WINDMILL NO. 2 AT OUR FLORIDA HOME.

The new windmill had its first trial today, Jan. 15. I think, perhaps, I am the first to discover that wind, *at least sometimes*, blows quite briskly at one place, and 200 feet distant *doesn't* blow. This upsets my plan of making the two pull together, like a span of horses. Instead of charging the auto with *one* plug, in the rear, we must have a "charging plug," both front and rear, and have one mill charge the front and one the rear. Clippell and Kaiser are both on the problem, and I don't know of two better and more capable men, for the job, in the whole wide world. When the auto is out on the road, the same thing must be done with the 16-cell stationary battery just received. Let each mill take half of the 16. Should it, in the future, be found advisable to have a "battery" of windmills, say a half-dozen in a string, this "erratic" habit of the wind will doubtless prove a good thing, for altogether they will give a much steadier current.

Feb. 11th.—We have all our batteries fully charged, and the two windmills are about out of a job. Owing to the difficulty of getting appliances of 32 volts (instead of 110), we are not yet doing the heating and cooking by wind power, but our home

is lighted beautifully by 75-Watt nitrogen globes. A queer thing, to me at least, is the fact that one mill will almost stand still, while the other stores at a very fair rate; and the two very rarely have the same speed even when only 200 feet apart. I believe the flying machines have hinted at this erratic habit of the wind. In one respect this is fortunate, for with a single mill the hand of the ammeter on the auto was always dodging up and down; with the two mills, the united current is very much steadier, and with, say, one-half dozen mills we might do many kinds of work without any battery at all, or with a comparatively small and inexpensive battery.

Later: What seemed yesterday "the impossible," has apparently been accomplished. The two windmills are now pulling together like a well-trained team of horses, and a single "charging plug" delivers the whole current to either the automobile batteries, or the stationary batteries. See below, clipped from the *Cleveland Plain Dealer*:

WIND POWER.

Editor Plain Dealer:—Sir: In view of a possible coal shortage in the next few years, I would suggest that people who have favorable locations where a powerful windmill could be erected, take advantage of the wind's force to drive many machines, electrical and otherwise, that are at present depending on power plants that are taxed to the limit. Modern ball and roller bearings, scientific bearings, light structural iron towers, and modern draughtmanship could evolve an efficient air turbine that connected to the dynamo, or by belt direct, could furnish light and heat for ironing, washing machines, saws for cordwood or steel bars, and numberless other devices that need power; and combined with present sources, as in case of wind velocity shortage, which has not manifested itself this year, the power could be switched to the present supply until the mill whirls again.

Cleveland.

EDWARD BROWN.

FLORIDA NEW POTATOES.

About the middle of February one of our Bradentown grocers came down to our place and said he wanted one-half bushel or more of nice, new potatoes, and that he would pay \$5.00 per bushel for them. Altho they were not quite ready to dig I carried them up in the wind electric auto, and, as soon as people saw them, there was a big demand for more. The result is I have carried up town about two bushels (\$10.00 worth) a day for the last 20 days, and the demand has been for *more* every trip I have made. The grocers retail them at 75c a ½-peck basket (\$6.00 per bu.), and a good many are sold in quart baskets at 20c a basket. Why these great prices? Well, it is just because my potatoes are started in a bed of *very rich soil*, that can be protected from frost as I have described, winter after winter. These

great, strong, thrifty plants, with bushy roots and some of the rich soil adhering, get the potatoes three or even four weeks ahead of any body else's. I asked this same grocer today if he knew of any one else in Manatee County who had new potatoes, and he said he did not. I have had exclusive control of the market in this same way winter after winter, and yet no one else seems to "catch on." Even our experiment stations seem to think it "too much fuss and bother," when I try to explain it to them. Now then, you good people up North! This will probably reach your eyes just at the proper time to start your potatoes in a hot bed or cold frame. Cut them to one eye or as near as you can, and make that one eye send out a good, strong, thrifty plant with roots and leaves by the time they can be set outdoors. When weeds start, the potatoes are so much ahead of them, they (the weeds) get "discouraged" and give up and there are *no missing hills*. I said a while ago, the way to make hens lay was to "love them." Well, that is exactly the way to make potatoes "astonish the natives." When I attempt to unload, the women folks on the walk crowd up and want to buy "those beautiful potatoes." I tell them they are all sold, and indeed such has been the case for the last three weeks, every single trip.

From a bed of four rows of potatoes 120 feet long, I received \$25.00. As I deal with "cash and carry" grocers, I get my pay at every delivery. In this same bed I have grown potatoes year after year for nearly 10 years past. My crop is cleaner and handsomer this year than ever before. If you want further particulars as to how I do it, see your back journals of about a year ago. The two windmills, that supply the current for the beautiful Nitrogen lamp that enables me to do this writing, are *still* working together like a couple of brothers.

THE NEW ANNUAL WHITE SWEET CLOVER.

We take it for granted that our readers, at least most of them, read what has been told in GLEANINGS about this new legume. A thousand persons, more or less, have sent for our little trial package of seeds. After this send all applications for free samples, as above, to Medina, O., instead of here. Below is a sort of "summing up," which we clip from the *Ohio Farmer* of Mar. 6. With the article the *Farmer* gave a picture of plants "six feet high, 4½ months from planting."

VALUABLE NEW CLOVER.

From the Iowa Experiment Station comes the announcement of a variety of white sweet clover which develops in one year instead of two, as with

the common kind. Plants of this new variety have been grown in all parts of the United States and in many foreign countries with almost uniform success. In some comparative plantings the new annual sweet clover grew to a height of 4½ feet, while the ordinary or biennial kind made a growth of 12 to 14 inches. When sown the same season, under as near identical conditions as possible, medium red clover made a growth of three to five inches while the annual white sweet clover grew to a height of three to 4½ feet. This is a wonderful growth of forage in so short a time. The new crop will soon find a place in restoring humus to worn lands. It furnishes a tremendous growth of valuable forage and is a great honey producer. The discovery and development of this annual variety of sweet clover is a creditable piece of constructive work by our experiment stations. While the variety was discovered at the Iowa station, it is thought to have originated in Alabama, from which State came some of the seed that was under observation at Ames. In the development and testing out of the new variety practically all of our experiment stations and many leading seedsmen have co-operated. At the Ohio Experiment Station the plants ranged from 15 to 60 inches in height, and ripened seed. In a few years the seed will be on the general seed market, but at this time it is available only in small quantities for testing and developing.

DEMANDS FOR SEED COME FROM AROUND THE WORLD.

Following the first trials made with this clover, unheard of prices were offered from Denmark, Australia, Canada, England, and the far islands of the sea. But no seed was for sale for general distribution. The Iowa station had determined to wait for another year's reports, for additional tests and for further increase of seed before making further dispersals.

The reports from another year's trials are all in now, and the Iowa station knows pretty definitely what this clover will do under a great variety of conditions. Its estimate of the probable future of the plant is not based on its own trials alone, but also on trials made by experiment stations, seed companies, and farmers in all parts of the country. Having this information the station is ready to give a few seeds to any farmer who will send a stamped addressed envelope to carry the seed to him. Address Iowa Experiment Station, Ames, Ia.

The Rural New Yorker for Mar. 13 contains two lengthy articles on this new acquisition to agriculture. The seed was first given to the general world thru Gleanings (see page 629, Oct. 1918). Will the friends who received the "little pinch" of seed take notice the seed is now worth more than its weight in gold.

Aside from the offer of a few seeds free from the Iowa Station, I know of but one place in the whole wide world where seed can be purchased. See page 110, February issue.

Special Notices by A. I. Root

HELPS FOR DEAF PEOPLE.

On page 744 of the November issue I gave my experience with electric hearing devices. Since then I have purchased a Port-O-Phone instrument made by The Port-O-Phone Corporation, 1919-1929 Broadway, New York City, and while it is not all I could desire, it is so much better I have laid aside the two other instruments mentioned in the article referred to above.

Classified Advertisements

Notices will be inserted in these classified columns for 25 cents per line. Advertisements intended for this department cannot be less than two lines, and you must say you want your advertisement in the classified column or we will not be responsible for errors. Copy should be received by 15th of preceding month to insure insertion.

REGULAR ADVERTISERS DISCONTINUED IN GOOD STANDING.

Dave Peck Seed Co., J. A. & B. Lincoln, A. A. Berry Seed Co., R. M. Kellogg Co., Jas. Vick's Sons, Storrs & Harrison, L. J. Farmer, Condon Bros., American Mutual Seed Co., Lewis Roesch, Rhodes Mfg. Co., D. Hill Nursery Co., Virgil Weaver, Sunnyside Apiaries, Hyde Bee Co., Stover Apiaries, C. F. Alexander, T. C. Asher, Fred Briggs, W. B. Crane, Wildflower Apiaries, A. R. Graham, Jacob Long, Jr., McAdams Seed Co., H. L. Murry, C. B. Peterson, A. J. Pinard, P. B. Ramer, W. M. Robb, E. S. Robinson, P. W. Sowinski, Otto J. Spahn, Untile Co.

HONEY AND WAX FOR SALE

Beeswax bought and sold. Strohmeier & Arpe Co., 139 Franklin St., New York.

FOR SALE.—Clover extracted honey in 5-lb. pails. L. S. Griggs, 711 Avon St., Flint, Mich.

FOR SALE.—Clover and buckwheat honey in any style containers (glass or tin). Let us quote you. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Four tons choice clover honey, extra well ripened, packed in new 60-lb. tins, two in a case. Wish to sell in one lot.
Lee & Wallin, Brooksville, Ky.

FOR SALE.—12,000 lbs. new crop, well-ripened Old Ky. No. 1 clover honey, in 60-lb. cans, at 22½¢ per lb. f. o. b. Brooksville. Sample 25¢.
W. B. Wallin, Brooksville, Ky.

FOR SALE.—We have a very choice lot of white clover honey at 25¢ per lb. in 60-lb. cans; also some very choice fall honey at same price.
M. V. Facey, Preston, Minn.

FOR SALE.—Finest quality extracted white-clover honey in 10-lb. pails for \$2.70 each; also in 60-lb. cans, for \$15.00 each.
Charles Sharp, Romulus, N. Y.

FOR SALE.—We have a small part of our crop of white clover-basswood extracted honey left, packed in new 60-lb. cans, two to the case. Write for prices.
D. R. Townsend, Northstar, Mich.

FOR SALE.—10,000 lbs. very fine clover-alfalfa extracted honey in new 60-lb. cans, two in a case. Make me an offer for this lot, cash here.
Custer Battlefield Apiaries, Hardin, Mont.

FOR SALE.—24 cases buckwheat comb honey No. 1 quality, \$6.00 per case; 12 cases mixed, not all capped, \$4.00 per case, six cases to carrier; clear clover extracted, 25¢ per pound. Buckwheat and clover mixed, 20¢; two 60-lb. cans to case.
H. G. Quirin, Bellevue, Ohio.

E. D. Townsend & Sons, Northstar, Michigan, offer their 1919 crop of white clover and white clover and basswood blend of extracted honey for sale. This crop (it's only a half crop this year) was stored in nice white clean extracting combs that had NEVER had a particle of brood hatched from them. We had more of those extracting combs than we could possibly use this year, and we piled them on the swarms as needed. NOT A SINGLE OUNCE OF HONEY WAS EXTRACTED UNTIL SOME TIME AFTER THE CLOSE OF THE

WHITE HONEY FLOW; consequently NONE could be produced that will excel this crop of honey. Of course, it is put up in NEW 60-pound net tin cans, and they are cased up for shipment, two in a case. If you are one of those who buy "just ordinary" honey, at the lowest price possible, kindly do not write us about this lot of honey, but if you can and have customers who will want the very best and are willing to pay the price, order a small shipment of this fine honey as a sample, then you will know just what our honey is and whether it is worth the little extra price we ask for it or not. We quote you this fine honey, either clear clover, or that containing about 5 per cent of basswood—just enough basswood to give it that exquisite flavor relished by so many—one can, \$15.50; case of two cans, \$30.00. If a larger quantity is needed, state how much you will need and we will quote you a special low price. Kindly address, with remittance,
E. D. Townsend & Sons, Northstar, Mich.

HONEY AND WAX WANTED

WANTED.—Small lots of off-grade honey for baking purposes.

C. W. Finch, 1451 Ogden Ave., Chicago, Ill.

BEESWAX WANTED.—For manufacture into SUPERIOR FOUNDATION. (Weed Process.)
Superior Honey Co., Ogden, Utah.

WANTED.—Extracted and comb honey. Carload or less quantities. Send particulars by mail and samples of extracted.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

WANTED.—White clover or light extracted honey. Send sample, state how honey is put up and lowest cash price delivered at Monroe. Also buy beeswax.
E. B. Rosa, Monroe, Wis.

BEESWAX WANTED.—We are paying higher prices than usual for beeswax. Drop us a line and get our prices, either delivered at our station or your station as you choose. State how much you have and quality. Dadant & Sons, Hamilton, Illinois.

WANTED.—Beeswax. We are paying 1 and 2¢ extra for choice yellow beeswax and in exchange for supplies we can offer a still better price. Be sure your shipment bears your name and address so we can identify it immediately upon arrival, and make prompt remittance.

The A. I. Root Co., Medina, Ohio.

FOR SALE

Root's Goods at Root's Prices.

A. W. Yates, 3 Chapman St., Hartford, Conn.

I manufacture Modern Cypress beehives. Write for prices.
J. Tom White, Dublin, Ga.

HONEY LABELS.—New designs. Catalog free.
Eastern Label Co., Clintonville, Conn.

FOR SALE.—A full line of Root's goods at Root's prices.
A. L. Healy, Mayaguez, Porto Rico.

A full line of Root's goods at catalog prices. Catalog on request. Will buy your beeswax, 40¢ cash, 42¢ trade. A. M. Moore, Zanesville, Ohio.

FOR SALE.—SUPERIOR FOUNDATION, "Best by Test." Let us prove it. Order now.
Superior Honey Co., Ogden, Utah.

STILES BEE SUPPLY COMPANY. Stillwater, Okla. We carry a full line of Root's Bee Supplies. Beeswax wanted. Free catalog.

FOR SALE.—11-inch foundation mill, or will exchange for bee supplies.

G. A. Ohmert & Son, Dubuque, Iowa.

PORTER BEE ESCAPES save honey, time, and money. Great labor-savers. For sale by all dealers in bee supplies.
R. & E. C. Porter, Lewistown, Ills.

How many queens have you lost introducing? Try the Safe way, push-in-comb introducing cage, 50c. Postpaid. O. S. Rexford, Winsted, Conn.

FOR SALE.—At reduced prices, to close out, beekeepers' supplies.

Anton G. Anderson, Holden, Mo.

FOR SALE.—200 8-frame hives with newly drawn combs, wired, \$.275 each. Write

Fred Alger, Waukau, Wisc.

FOR SALE.—100 wood-bound zinc excluders for 10-frame hives. Almost new. 50 or more, 30c each. Less than 50, 35c each. Address

Edwin G. Baldwin, 42 Vine St., Ashtabula, Ohio.

FOR SALE.—Hatch wax press, 100 lbs. heavy foundation and 50 comb supers. All dirt cheap. Address

W. I. Lively, 932 West Polk St., Phoenix, Ariz.

FOR SALE.—150 cases (2 in case) second-hand 5-gallon honey cans at 50c per case f. o. b. Milwaukee. Laabs Brothers Co., 20th & Walnut Sts., Milwaukee, Wis.

FOR SALE.—Second-hand honey tins, two per case, in exceptionally fine condition at 50c per case. Buy them now for next summer's honey crop.

Hoffman & Hauck, Inc., Woodhaven, N. Y.

FOR SALE.—Good second-hand empty 60-lb. honey cans, two cans to the case, at 60c per case f. o. b. Cincinnati. Terms, cash with order. C. H. W. Weber & Co., 2146 Central Ave., Cincinnati, O.

FLORIDA BEEKEEPERS.—You save money by placing your order for Root's Bee Supplies with us. We carry the complete line. Will buy your beeswax. Write for catalog.

Crenshaw Bros. Seed Co., Tampa, Fla.

FOR SALE.—Weis fibre containers, size 6 oz., 15 oz., 24 oz., 3 lb., and 5 lb., nearly 500 of each kind. Will sell any quantity, or lot at \$40.00. Also have 10 Root queen nuclei boxes.

J. G. Kilian, Ridgeway, N. C.

FOR SALE.—One foundation mill, 6½-in. roller. 30 eight-frame supers for 4¼-sections; 1000 thick top-bars Langstroth frames, in lots of 100 or more. 25 chaff hives.

M. E. Ballard, Roxbury, N. Y.

FOR SALE.—Four six-frame Root automatic hand extractors for Langstroth frame. All in perfect condition. Reason for selling—am using eight-frame power extractor.

C. J. Baldridge, Homestead Farm, Kendaia, N. Y.

FOR SALE.—65 10-frame supers, used one season, with drawn-out foundation free from disease, wired frames, at \$3.50 each, f. o. b. Spring Park, Minn. Mail check to

Paul Knechtges, 1664 Laurel Ave., St. Paul, Minn.

CANADIAN BEE SUPPLY & HONEY CO., Ltd.—73 Jarvis St., Toronto, Ont. (Note new address.) We have made-in-Canada goods; also can supply Root's goods on order. Extractors and engines; GLEANINGS and all kinds of bee literature. Get the best. Catalog free.

FOR SALE.—200 new 10-frame cross style reversible bottom-boards at 50c each; 200 new 10-frame flat reversible covers made of best select white pine at 60c each; 100 new Alexander feeders for 8- or 10-frame hives at 20c each; 150 Boardman feeders without cap or jar at 12c each. All above goods are factory-made and have never been used. Write M. E. Eggers, Eau Claire, Wisc.

FOR SALE.—560 Hoffman frames, \$22.40; 1 two-frame Cowan Extractor, \$33; 2 Bingham uncapping-knives, \$2.40; 1 Peterson capping-melter, \$25.92; 1 Woodman section foundation-fastener and lamp, \$4.50; 94 lbs. medium brood fdn., 10 lbs. light brood, \$67.60; 7 lbs. light section, \$5.25; 100 12-section crates, \$15.00. These goods new, or practically new. For the lot, 25 per cent off above price United States money, at East Aurora, N. Y.

R. F. Holtermann, Brantford, Ont., Canada.

"Stanley's" queen-rearing nursery twin-mating boxes, cell cups and protectors. Cheapest and most adaptable. Write for information and prices. We can take a few more pupils in our queen-rearing course. A. Stanley & E. C. Bird, 2008 Pearl St., Boulder, Colo.

FOR SALE.—Root's Extractors and Smokers, Dadant's Foundation, and a full line of Lewis' Beeware. Our new price list will interest you. We pay 38c in cash and 40c in trade for clean yellow beeswax delivered in Denver. The Colorado Honey Producers' Association, 1424 Market St., Denver, Colo.

REAL ESTATE

FOR SALE.—Twenty-acre farm, 200 colonies of bees, one acre ginseng and golden seal. Good soil, buildings, bee equipment and location.

L. Francisco, Dancy, Wisc.

AUTOMOBILE REPAIRS

AUTOMOBILE owners should subscribe for the AUTOMOBILE DEALER AND REPAIRER; 150-page illustrated monthly devoted exclusively to the care and repair of the car. The only magazine in the world devoted to the practical side of motoring. The "Trouble Department" contains five pages of numbered questions each month from car owners and repairmen which are answered by experts on gasoline-engine repairs. \$1.50 per year. 15 cents per copy. Postals not answered. Charles D. Sherman, 107 Highland Court, Hartford, Conn.

WANTS AND EXCHANGE

WANTED.—200 or less colonies of bees (any style hive) for spring delivery.

A. W. Smith, Birmingham, Mich.

WANTED.—A second-hand 2- or 4-frame reversible extractor; also steam uncapping knife.

Maggie Stripling, Altamaha, Ga.

WANTED.—To purchase Hershisser wax press. Give price and condition.

O. W. Bedell, Earlville, N. Y.

WANTED.—Old combs and cappings for rendering on shares. Our steam equipment secures all the wax.

Superior Honey Co., Ogden, Utah.

WANTED.—To buy 300 colonies of bees, equipped for extracted-honey production.

L. S. Griggs, 711 Avon St., Flint, Mich.

WANTED.—To exchange Black Giants, American Checkered, or New Zealand Rabbits, for cash or bee supplies.

Joy Rabbitry, Joy, Ills.

WANTED.—Five or six colonies of bees, about May 1. Must be strong.

F. M. Feasler, R. D. No. 2, Erie, Pa.

WANTED.—50 to 75 swarms of bees for standard ten-frame hives on Hoffman frames, free from disease, within radius of 100 miles of Preston, Minn. State price. Romen Grebin, Preston, Minn.

WANTED.—30 or less colonies of bees in or around Chicago. Also honey extractor. Write soon. Tim O'Donnell, Jr., 1147 So. Springfield Ave., Chicago, Ills.

WANTED.—To exchange a new 32 Winchester Special Rifle with 49 cartridges for a Barnes combined saw.

Dwight G. Cook, Chateaugay, R. D. No. 2, N. Y.

WANTED.—Shipments of old comb and cappings for rendering. We pay the highest cash and trade prices, charging but 5c a pound for wax rendered. The Fred W. Muth Co., Pearl & Walnut St., Cincinnati, O.

OLD COMBS WANTED.—Our steam wax-presses will get every ounce of beeswax out of old combs, cappings or slumgum. Send for our terms and our new 1920 catalog. We will buy your share of the wax for cash or will work it into foundation for you. Dadant & Sons, Hamilton, Illinois.

BEES AND QUEENS

Finest Italian queens. Send for booklet and price list. Jay Smith, R. D. No. 3, Vincennes, Ind.

Hardy Italian queens. No bees. W. G. Lauver, Middletown, Pa.

QUEENS ON APPROVAL.—Bees by package or colony. A. M. Applegate, Reynoldsville, Pa.

Golden Italian queens, untested, \$1.25 each; dozen, \$12.00. E. A. Simmons, Greenville, Ala.

FOR SALE.—1920 Golden Italian queens, price list free. Write E. E. Lawrence, Doniphan, Mo.

THAGARD'S Italian queens, circular free, see larger ad elsewhere. V. R. Thagard, Greenville, Ala.

QUEENS ON APPROVAL.—Bees by package or colony. Birdie M. Hartle, Reynoldsville, Pa.

FOR SALE.—Near Cincinnati, Ohio, 90 colonies of bees, extracted outfit. A. Carder, Ludlow, Ky.

FOR SALE.—Two-pound packages of bees with Italian queen. Allenville Apiaries, Allenville, Ala.

PHELPS' GOLDEN QUEENS will please you. Mated, \$2.00. Try one and you will be convinced. C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—50 colonies of bees in 10-frame hives, good condition, no disease, \$11.00 per colony. J. H. Stoneman, Blackfoot, Idaho.

FOR SALE.—Golden and three-banded queens untested, April, May, and June delivery, \$1.25 each; \$12.50 per doz. Satisfaction. R. O. Cox, Greenville, R. D. No. 4, Ala.

FOR SALE.—Queens, nuclei, packages, colonies from our apiaries in Arkansas and Louisiana. Write for prices now. The Foster Honey & Merc. Co., Boulder, Colo.

We will ship 2-lb. packages and full colonies only this season. Three-banded Italian queens any quantity. Send for prices. J. A. Jones & Son, R. D. No. 1, Box No. 11-A, Montgomery, Ala.

Golden queens ready April 15th. One queen, \$1.50; 6, \$7.50; 12, \$14.00; 100, \$100.00. Virgins, 75c each. W. W. Talley, Greenville, R. D. No. 4, Ala.

BEES BY THE POUND.—Also QUEENS. Booking orders now. FREE circulars give details. See larger ad elsewhere. Nueces County Apiaries, Calallen, Texas, E. B. Ault, Prop.

Bees by the pound a specialty; 2000 lbs. for May delivery, 1920; 200 Italian queens for sale with above bees. Write for prices. A. O. Jones & H. Stevenson, Akers, La.

GOLDENS THAT ARE TRUE TO NAME. 1 select untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$55.00; 100, \$100.00. Garden City Apiaries, San Jose, Calif.

PHELPS' GOLDEN ITALIAN QUEENS combine the qualities you want. They are GREAT HONEY-GATHERERS, BEAUTIFUL and GEN- TLE. Virgins, \$1.00; mated, \$2.00. C. W. Phelps & Son, Binghamton, N. Y.

Italian queens, the kind that are sure to please you. Untested, in April, \$1.25 each; one untested, May 1 to July 1, \$1.00; one tested, May 1 to July 1, \$1.50. Discount on large orders. Safe arrival guaranteed. L. R. Dockery, Carrizo Springs, Texas.

When it's GOLDEN it's Phelps'. Try one and be convinced. Virgins, \$1.00; mated, \$2.00.

C. W. Phelps & Son, Binghamton, N. Y.

FOR SALE.—Bright Italian queens, \$1.50 each; \$14.00 per doz. Ready after April 15. T. J. Talley, Greenville, R. D. No. 4, Ala.

FOR SALE.—90 colonies bees with equipment. Fine condition. Fine location. Will rent property and half-acre lot. Supply trade. O. Holdren, Darlington, Mo.

FOR SALE.—We can ship 2-lb. packages of bees with queens from our honey yards after May 10. Stock Italian and Hybrid. Price, \$5.00. Sarasota Bee Co., Sarasota, Fla.

FOR SALE.—Bees, 2-lb. packages, \$4.50; untested queens (Gleanings Code), \$1.50. No foul brood known within 100 miles. S. T. Crawford, R. D. No. 1, Glendale, Ariz.

FOR SALE.—Italian Bees and Queens (the kind that fill from 2 to 4 supers) full colonies, \$12.00 and \$15.00 each. Queens, after May 1, \$2.00 each, 6 for \$11.00. Miss Lulu Goodwin, Mankato, Minn.

FOR SALE.—Pure Italian queens, packages and nuclei. One untested queen, \$1.50; 6, \$7.50; 12, \$13.50; 50, \$55.00; 100, \$100.00. Golden Star Apiaries, San Jose, Calif.

FOR SALE.—20 colonies in 8-fr. hives tested Italian queens, good worker combs, Hoffman frames, inspection certificate if desired, \$20.00 each. May delivery. Richard D. Barclay, Riverton, N. J.

FOR SALE.—Golden queens. Will begin filling orders May 15 in rotation. Untested, \$1.10; selected untested, \$1.50 each. Safe arrival. Hazel V. Bonkemeyer, Randleman, N. C.

ITALIAN QUEENS OF WINDMERE will be ready in May. Untested, \$1.25 each; six for \$7.00. Tested, \$2.00 each. Select tested, \$2.50 each. Now booking orders. Prof. W. A. Matheny, Ohio University, Athens, Ohio.

Golden Italian queens that produce golden bees; the highest kind, gentle, and as good honey-gatherers as can be found; May to August, untested, each, \$2.00; six, \$8.00; doz., \$15.00; tested, \$4.00; breeders, \$5.00 to \$20.00. J. B. Brockwell, Barnetts, Va.

FOR SALE.—\$6.00 for four-frame nuclei of hybrid bees without queens in May and June; a few strong box-hive colonies \$8.00, with queens. Your money's worth every time. A good chance for a young beeman. B. F. Averill, Howardsville, Va.

FOR SALE.—Not having a good place to keep them I wish to sell the following: Gleanings from 1906 to 1919, complete; American Bee Journal from 1910 to 1919, complete. All in first-class No. 1 condition. Will sell for best reasonable offer f. o. b. A. A. Augenstein, Dakota, R. D. No. 2, Ills.

BUSINESS-FIRST QUEENS.—Untested, \$1.00 each; \$11.00 per doz.; select untested, \$1.50 each; \$12.00 per doz.; tested, \$2.00 each; select tested, \$2.50 each; breeding queens, \$5.00 and \$10.00 each. Safe arrival guaranteed in the United States. M. F. Perry, Bradentown, Fla.

FOR SALE.—Golden Italian queens, untested, \$1.15; 6 for \$6.50; 12 or more, \$1.00 each; tested, \$2.00 each; select tested, \$3.00 each; extra select tested, \$4.00 each. No bees for sale. Have all the orders now for untested I can fill by the 10th or 15th of June. D. T. Gaster, R. D. No. 2, Randleman, N. C.

MOTTS' NORTHERN BRED ITALIAN QUEENS.—I have breeding mothers placed in the South for April and early May queens. Plans "How to Introduce Queens and Increase," 25c. If you want beauty with the best of summer and winter laying birds, try a setting of my Golden Campines. E. E. Mott, Glenwood, Mich.

FOR SALE.—Italian queens three-banded and Golden. High grade, carefully bred from best select stock. Price each, \$1.25; 6, \$6.50; 12, \$13.00; extra select, \$2.00. Orders booked now. Satisfaction guaranteed.

G. H. Merrill, Pickens, S. C., (Formerly Liberty.)

FOR SALE.—1920 prices for "She suits me" queens. Untested Italian queens, from May 15 to June 15, \$1.50 each. After June 15, \$1.30 each; \$12.50 for 10; \$1.10 each when 25 or more are ordered. Allen Latham, Norwichton, Conn.

FOR SALE.—Mr. Beeman, head your colonies of bees with the best Italian stock raised in the South. One queen, \$1.25; 12 queens, \$14.00. One pound of bees with queen, postpaid, \$6.00. Safe arrival and satisfaction guaranteed.

M. Bates, Greenville, R. D. No. 4, Ala.

We have enlarged our queen yard considerably. We can take care of orders better than ever, large or small. April 15 to June 1, untested queens, \$1.25; tested, \$2.50; untested, \$115.00 per 100. After June 1, \$1.00 each or \$90.00 per 100. J. A. Jones & Son, Montgomery, R. D. No. 1, Box 11a, Ala.

THE BEES THAT PLEASE. Three-banded leather-colored Italians, hustlers, none better, 2-lb. packages only. Untested queens, \$1.25; 2-lb. packages, \$4.75. Ready to ship about April 15. 25 per cent in advance, balance to be paid before bees are shipped. Write for circular.

J. M. Cutts, R. F. D. No. 1, Montgomery, Ala.

FOR SALE.—Italian queens from some of the best stock in the U. S., mailed as soon as hatched. Safe arrival guaranteed to any part of the U. S. and Canada. All queens mailed in improved safety introducing cages. Order early. Send for circular. Prices, April to October, 1, 75c; 10, \$6.00; 50, \$27.50. James McKee, Riverside, Calif.

FOR SALE.—Quirin's hardy northern-bred Italians will please you. All our yards are wintered on summer stands; more than 25 years a commercial queen-breeder. Tested and breeding queens ready almost any time weather permits mailing. Untested ready about June 1. Orders booked now. Testimonials and price for asking.

H. G. Quirin, Bellevue, Ohio.

QUEENS.—Select three-banded Italians. Reared from the best mothers and mated to choice drones. Ready to ship May 1. Untested, one, \$2.00; six, \$9.00; twelve, \$16.80. After June 1, one, \$1.50; six, \$8.00; twelve, \$14.00. Select tested, \$3.00 each. Write for prices per hundred. Descriptive circular free.

Hardin S. Foster, Dept. G, Columbia, Tenn.

1920 prices on nuclei and queens. Miller strain. Queens, untested, \$1.50 each; \$15.00 per doz.; tested \$2.00 each, \$22.00 per doz. One-frame nucleus, \$3.00; two-frame, \$5.00; three-frame, \$6.50, without queens, f. o. b. Macon, Miss. We have never had any bee or brood disease here. Will have no queens except for nuclei until June 1. Safe arrival and satisfaction guaranteed.

Geo. A. Hummer & Sons, Prairie Point, Miss.

ITALIAN QUEENS.—The Old Reliable three-banded Italians, the best all-around bee to be had. Queens ready to mail April 1, 1920. Will book orders now. Will guarantee safe arrival in United States and Canada. Prices for April and May: Untested, \$1.50; 6, \$8.00; 12, \$15.00. Tested, \$2.25; 6, \$12.00; 12, \$22.00. Select tested, \$3.00 each. Descriptive circular and price list free.

John G. Miller, 723 C St., Corpus Christi, Texas.

FOR SALE.—Highest Grade Three-banded Italian queens, ready June 1. Queen and drone mothers are selected from stock of proven worth in hardiness, gentleness, honey production and disease-resisting qualities. Untested, each, \$1.25; 6, \$6.50; 12, \$12.00; 50, \$47.50; 100, \$90. Your correspondence will receive prompt attention and I guarantee satisfaction.

A. E. Crandall, Berlin, Conn.

FOR SALE.—Four colonies of bees with full equipment. R. I. Barney, 4653 N. Hermitage Ave., Chicago, Ills.

MISCELLANEOUS

FOR SALE.—Silver Spangled Hamburg Eggs and Cockerels. Elias Fox, Union Center, Wis.

Annual White Sweet Clover seed, trial packets at \$1.00 per packet, postpaid.

Henry Field Seed Co., Shenandoah, Iowa.

Write for shipping tags and our prices for rendering your old combs, cappings, etc. We guarantee a first-class job. The Deroy Taylor Co., Newark, N. Y.

FOR SALE.—Early cabbage and tomato plants, 50c per 100, postpaid.

J. F. Michael, Winchester, Ind.

FOR SALE.—Scotch Collie puppies, pedigreed, from trained parents.

St. Vincent Collie Kennels, St. Vincent, Minn.

FOR SALE.—Yellow Biennial Sweet Clover Seed, hulled at 30c a pound; unhulled, 18c a pound. This is the big yellow and makes great bee pasture. Seed sent on money-back guarantee, if not satisfactory. F. Rasmussen, Grower of Sweet Clover, Rockville, Nebr.

HELP WANTED

WANTED.—Young man wishing to learn bee-keeping, up-to-date methods. State age and habits. Chas. Schilke, Matawan, R. D. No. 2, N. J.

WANTED.—A competent beekeeper to work bees in southern New Mexico. Must be thoro and fast worker. Mesilla Valley Honey Co., Canutillo, Tex.

WANTED.—Experienced man for comb honey. Give age, experience, and salary expected.

B. F. Smith, Jr., Fromberg, Mont.

WANTED.—A good queen-breeder, begin at once. An opportunity to learn the package business and a good position for the right man. State age, amount of experience, and salary wanted in first letter. W. D. Achord, Fitzpatrick, Ala.

WANTED.—A young man of good character, 27 years of age, desires to work in an apiary to learn more in bee culture. References if desired. H. Stanley Cole, Jr., Worthington, Mass.

WANTED.—We can use an experienced man in extracted-honey production during the season of 1920. Applicant kindly state age, experience, and wages expected in first letter, and oblige

E. D. Townsend & Sons, Northstar, Mich.

WANTED.—Man, season of 1920, to work with bees. State age, experience, and wages. Give reference. Permanent employment to right man. The Rocky Mountain Bee Co., Box No. 1369, Billings, Mont.

WANTED.—One experienced beeman and one helper. Must be young man, able-bodied, and with good character. Prefer one man that can handle auto truck. State salary and give references when answering. Ernest W. Fox, Fruitdale, So. Dak.

WANTED.—One experienced man, and students or helpers in our large bee business; good chance to learn. Modern equipment and outfit, including auto truck; located near summer resorts. Write, giving age, height, weight, experience, reference, and wages wanted. W. A. Latschaw Co., Clarion, Mich.

WANTED.—Two young men as students for coming season. Have twelve apiaries, giving extensive experience. Must be of clean habits. Give age, height, weight, condition of health, and if brought up in town or country. For terms, apply

R. F. Holtermann, Brantford, Ont., Can.

WANTED.—Queen-breeder, season of 1920. State age, experience, wages, and references.
F. Coombs & Sons, Brattleboro, Vt.

WANTED.—May 15 for four months, man with some experience to work in 400-colony extracted-honey apiary. State age, experience, and wages in first letter.
R. V. Cox, Sloansville, N. Y.

WANTED.—One experienced man and students, as helpers with our 1,000 colonies. Best opportunity to learn the business from A to Z, in the actual production of carloads of honey. Theory also. Write immediately, giving age, height, weight, habits, former employment, experience, references, wages, photo, all in first letter. E. F. Atwater (former Special Field Agent in Beekeeping, U. S. Dept. Agr. for Calif., Ariz., and New Mexico), Meridian, Idaho.

100 EVERBEARING STRAWBERRIES Plants \$2.00 POST PAID

200 for \$3.85, 300 for \$5.50. Americus, Progressive, Superb, Francis, Peerless,—some of each while in supply. When sold out of one or more we will send the others. Catalog Free.

C. N. FLANSBURGH & SON, Jackson, Mich.

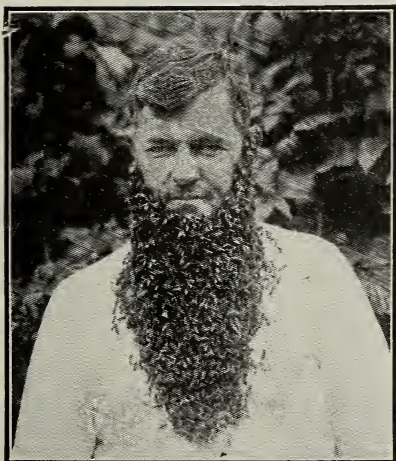
HYBRID POTATO SEED

Every seed will produce a new VARIETY of potato, some white and some red, some early and some late, no two alike, 100 or more seeds in each package. One package and three months' subscription to our Magazine, "Special Crops," regular price \$1.00; special price three months and seeds, 25 cents. PUBLISHER OF SPECIAL CROPS, SKANEATELES, N. Y.

QUEENS and PACKAGE BEES

We advise our prospective customers to place their orders as soon as they can determine their needs, and thus avoid being disappointed in getting queens or bees when desired. By our improved methods of shipping, you will be assured of receiving queens and bees in first-class condition.

Every Queen we send out is reared by me personally, and I assure you that they will be the product of my very best efforts. If any queen should fail to measure up to the standard of a first-class queen, she will be replaced free of charge at your request.



HEALTH CERTIFICATE

"The State Inspector has this day examined the bees belonging to Jay Smith and found no evidence of any bee disease."
Ross B. Scott, Deputy Inspector.
Date, May 28, 1919.

OPINIONS OF OTHERS.

"If I were asked who has the best Italian queens I would say, 'Jay Smith.' In 1918 I had several colonies that produced 300 pounds of extracted honey each. They were headed with queens that I raised from a queen I got from you in 1916."—F. R. Smythe, Amelia, Ohio.

"The strongest colony of bees I have seen this year was headed by a Jay Smith queen."—D. W. Erbaugh, Onward, Indiana, former Inspector of Indiana.

"Queens received. If their bees are as good as the queens, they will be 'Hum Dingers.'"—A. P. Berryman, McHenry, Ky.

"Thank you very much for the excellent quality of queens you sent and the fine treatment you have given me."—Dr. L. E. Moore, Gary, Indiana.

"The queen you sent me is such a beauty that I can hardly get her off my mind."—F. J. Rettig, Wabash, Indiana.

"The bees I got from you are the finest I ever saw and they don't try to sting."—Jacob Williamson, Riverton, Illinois.

"The queen I got of you last year was the only one in my yard that gave a surplus."—Albert Haas, Louisville, Kentucky.

"The queen I got from you is sure some worker. Her bees have made about three times as much honey as the rest I have."—Henry Fromberg, Crandell, South Dakota.

"The queen I received from you last fall proved to my entire satisfaction. She is a great layer and true to color."—Roy A. Cann, Munfordville, Kentucky.

Price List. Select Untested Queens

May 15 to July 1.

One to four inclusive, each.....	\$2.50
Five to nine inclusive, each.....	2.45
Ten or more, each.....	2.40

July 1 to November 1.

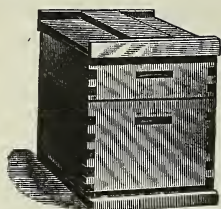
One to four inclusive, each.....	2.00
Five to nine inclusive, each.....	1.95
Ten or more, each.....	1.90

Bees by the Pound. After May 15

One Pound	\$4.00
Two Pounds	7.00

In lots of ten or more packages 5% discount.
Write for our booklet and complete price list.

JAY SMITH - ROUTE 3 - VINCENNES, INDIANA



Early-order Discounts will Pay You to Buy Bee Supplies Now

Thirty-two years' experience in making everything for the beekeeper. A large factory specially equipped for the purpose ensures goods of highest quality. Write for our illustrated catalog and discounts today.

Leahy Mfg. Co., 95 Sixth St., Higginsville, Missouri.

SOUTHERN HEADQUARTERS THE OLD RELIABLE BREEDERS OF THREE-BANDED ITALIAN BEES AND QUEENS



PRICES UNTIL JUNE 15

Untested queens, \$1.25 each; 12, \$13.25; 50 or more, \$1.00 each
Select untested queens, \$1.50 each; 12, \$16.00; 50 or more, \$1.25 each
Tested queens, \$2.00 each; 12, \$23.00
Select tested queens, \$2.50 each; 12, \$27.00
Very best breeding queen, \$5.00

Prompt service, safe arrival and satisfaction guaranteed. If any of our untested queens prove to be mated we will replace free of charge. No foul brood or other contagious bee disease has ever been in our vicinity.

Please let us have your orders now for June delivery.

W. D. ACHORD, FITZPATRICK, ALA.



WHEN YOU THINK OF BEEKEEPERS' SUPPLIES THINK OF INDIANAPOLIS

We carry a complete line of Root's goods and we solicit your trade. Our slogan: Courteous treatment and prompt service. Catalog for the asking.

THE A. I. ROOT COMPANY (Indianapolis Branch) 873 MASS. AVE.

AM NOW BOOKING ORDERS FOR MICHIGAN-BRED QUEENS THREE-BANDED ITALIANS ONLY TESTED DISEASE-RESISTERS

PRICES

	June 15 to July 15			July 15 to Oct. 1			
	1	6	12	1	6	12	100
Untested	\$1.50	\$8.00	\$15.00	\$1.30	\$7.50	\$13.50	\$110.00
Select Untested	1.75	9.00	16.00	1.60	8.00	14.00	115.00
Select Tested any time after June 20				3.00	16.00	29.00	
Select Day-old Virgins after June 1				.60	3.50	6.50	50.00

All queens hatched in nursery cages, and any inferior ones are killed. All queens mated in two-frame or three-frame nuclei. No baby nuclei in yard. Books opened April 1. If you are going to need good queens this summer, now is the time to order them.

D. A. DAVIS 216 GREENWOOD BIRMINGHAM, MICH.

DONT SEND A PENNY

Here are four remarkable shoe values at a saving so great that we willingly send your selection—no money in advance! You cannot go wrong with these splendid bargains, as we take all the risk of pleasing you. Style, Quality, Fit and Comfort are positively guaranteed by us. Just pick out the pair you want. **Send no money**—just your name, address and size—and we will at once send you the shoes for examination, try-on and comparison with other makes and prices. If you are not perfectly satisfied, with high quality, style, workmanship and fit of these shoes, return them to us, and you will not be out a penny.



Wears Like Iron This Work Shoe is the utmost in quality, style, fit and comfort at an almost unbelievable low bargain price. For built-in, wear-resisting qualities we challenge comparison with any work shoe costing half again as much. Heavy weight chrome tanned veal leath. r. brimful of comfort, yet made to wear and resist action of acids in soil, milk, manure, etc. Lace Blucher style, broad roomy toe, durable solid leather soles, sewed and nailed. Dirt excluding half bellows tongue. **Don't send a penny now!** Pay only **\$3.98** for shoes on arrival. If not fully convinced of the remarkable value return shoes to us; we will refund your money.

Sizes, 6 to 11.
Wide widths.
Order by No. A1817. Do it now! Be sure to state size wanted.

Order
At
Our
Risk

Stylish Dress Shoe


You must see these elegant dress shoes to realize the unusual value. They give wonderful wear and are extremely stylish and dressy, too. Made of specially selected fine quality gun metal leather on popular Manhattan toe last. Blucher style. Solid oak leather soles. Reinforced shank on cap; military heel. Best workmanship. You won't pay \$8.00 or \$10.00 for shoes when you can have these at this remarkably low price. Only a limited quantity at this price, so to avoid disappointment it is best to send in your order at once. A bargain like this soon clears out a large stock.



Your Name and Address Only
Send no money—only your name, address and size. Pay our low bargain price, **\$4.69**, for shoes on arrival. If not a stunning bargain and satisfactory in every way, return them and get your money back. You have nothing to lose—everything to gain—so send your order today. Sizes, 6 to 11—state size and width when ordering. Order by No. A15105.


Four Wonderful Shoe Bargains

Extra-Fine Quality Black Kid Finished Hi-Cut Boots



Here is a very attractive and unusual offer typical of the wonderful shoe values put out by the great Mail Order House of Leonard-Morton & Co. Fashionable Hi-Cut Boots, lace style, of fine quality soft black kid finished leather on the very latest French last and with the new popular 1½-inch walking heel. Light weight flexible leather soles. Just the sort of footwear a woman possesses with a feeling of pride. The kind that adds to a reputation as a stylish dresser. You can only appreciate the high degree of service and the quiet elegance which are combined in this shoe by seeing them on your feet. Wide widths. Sizes, 2½ to 8. Order by No. A1080. Price only **\$3.98**, payable on arrival of shoes. If not the greatest bargain you ever saw, return to us and we will promptly refund your money.

Women's High Grade Black and Brown Low Heel Oxford



Just the smart Spring and Summer style to give your appearance that final touch of well-dressed elegance; and at a price so low that you should lay in not only one pair, but several pairs in order to benefit fully by the remarkable saving. In these oxfords is to be found a combination of smart style and satisfactory service usually found only in shoes at much higher prices. Extra fine quality dark brown or black, soft, glove fitting, kid finished leather. Light weight flexible leather sole and stylish new 1½-inch walking heel. Send for these shoes at once. Their look, feel and wear will more than satisfy you. Wide widths. Sizes, 2½ to 8. Order Black by No. A158. Order Brown by No. A159. Pay only **\$3.98** for shoes on arrival. Examine critically. Try them on. Test their fit and comfort. Compare our low price with others, and if you are not more than delighted with your bargain, return shoes to us and we will cheerfully refund your money. When you send in your order do not fail to mention the size and width of your shoe.

Send Your Order Now!

Don't pass these splendid shoe bargains, which will be sent entirely at our risk without a penny in advance. Right now is your opportunity to strike a blow at the high cost of shoes and make a substantial saving in latest styles and guaranteed quality. Just send your name, address and size and the number of the shoes wanted. Examine them on arrival. Try them on. Look at their stylish appearance. Compare them with shoes selling for much more money. Then decide. If they are not all that you expect, return them to us and we will refund your money.

Leonard-Morton & Co., Dept. 4705 Chicago, Ill.

FOR SALE--THREE-BAND ITALIAN QUEENS

From best honey-gathering strain obtainable. (No disease.) Untested queens, \$1.25 each; 6, \$6.50; 12, \$12. Select untested, \$1.50 each; 6, \$9; 12, \$18. Tested, \$2.50 each. Safe arrival and satisfaction guaranteed. Your orders filled promptly.

W. T. PERDUE & SONS Rt. 1, Fort Deposit, Ala.

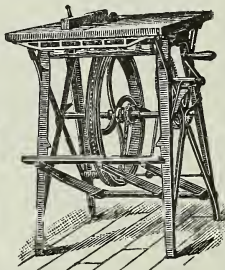
BARNES'
Hand and Foot Power
Machinery

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

Machines on Trial

Send for illustrated catalog and prices

W. F. & JOHN BARNES CO
 545 Ruby Street
 ROCKFORD, ILLINOIS


HONEY-MAKING, MONEY-MAKING
ITALIAN QUEENS

Untested - - \$1.50 each; 25 or more, \$1.35
 Tested - - - 2.50 each; 25 or more, 2.25
 Select tested, each - - - - - 3.00

First ready for mailing April 15. Also furnish nuclei and limited amount bees. Circular free.

R. V. STEARNS, BRADY, TEX.

NEWMAN'S ITALIAN QUEENS

Bred from the best. No disease. Satisfaction and safe arrival guaranteed.

Untested, \$1.25; 6, \$7.00; 12, \$13.50. Select Untested, \$1.75; 6, \$9.00; 12, \$17.00.

Circular free.

A. H. NEWMAN, - - MORGAN, KY.

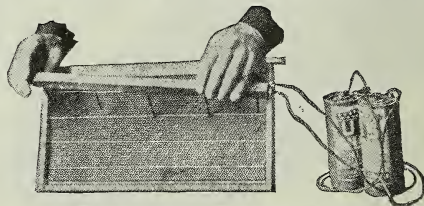
BEAUTIFUL IRIS

Splendid Collection of Best Varieties. Gorgeous Colors. All postpaid at Price Named.

	Each	Doz.
MME. CHEREAU, white, blue fringed	- - - 25c	\$2.50
LENOLDA, dark blue	- - - 25c	2.50
SANS SOUËL, yellow, petals wine	- - - 20c	2.00
GRACCUS, yellow, petals light wine	- - - 20c	2.00
OSSIAN, canary yellow, petals light purple	- - - 20c	2.00
SIBERIAN, blue	- - - 25c	2.50
FLORENTINE, purple	- - - 20c	2.00
CELESTE, sky blue	- - - 25c	2.50
FLAVESCENS, lemon yellow	- - - 20c	2.00
GOLD COIN, yellow, petals purple	- - - 20c	2.00

Collection one plant each variety postpaid \$2.00.

W. N. Scarff & Sons New Carlisle, Ohio

Electric Imbedder

Price without Batteries, \$1.25

Actually cements wires in the foundation. Will work with dry cells or with city current. Best device of its kind on the market. For sale by all bee-supply dealers.

Dadant & Sons Manufacturers Hamilton, Ills.

PATENTS

Practice in Patent Office and Courts
 Patent Counsel of The A. I. Root Co.

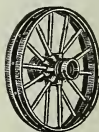
Chas. J. Williamson, McLachlan Building,
 WASHINGTON, D. C.

Write for Book
 Today

**FARM WAGONS**

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 23 Elm Street, Quincy, Ill.

**1920****QUEENS****1920**

A colony of bees with a poor queen is worth the hive and fixtures. A colony of bees with a good queen has no limit in value, the honey flow alone being the determining factor. I am using my thirty-five years of beekeeping and queen-rearing experience to produce the best that can be produced, and sell at a figure that will sustain the high quality of my queens.

PRICES

One, \$2; three, \$5.50; six, \$10; twelve, \$19. All amounts over one dozen, \$1.50 each. I sell only untested queens and make a specialty of this line. I select no queens, but try to have them all so good that there is little chance for selection. 1920 circular now ready.

Season opens April first.

P. C. CHADWICK

KERN COUNTY

DELANO, CALIF.

BEE SUPPLIES IN DIXIE

Dependable Goods with
prompt service. Save time
and transportation costs.

L. W. Crovatt, Savannah, Ga.
Box 134.



The "BEST" LIGHT

Positively the cheapest and strongest light on earth. Used in every country on the globe. Makes and burns its own gas. Casts no shadows. Clean and odorless. Absolutely safe. Over 200 styles. 100 to 2000 Candle Power. Fully Guaranteed. Write for catalog. AGENTS WANTED EVERYWHERE.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

Florida Queens and Bees

I will be fully ready to begin shipping bees and queens by April the 1st from my very best Italian stock at these prices: Two-frame nucleus with untested queen, \$6.00. Untested queens, \$1.50; tested, \$2.00.

Beekeepers' Supplies

I have a large and complete stock and prices are right. Get prices of my Cypress hives and hive parts, made of good soft Southern Cypress.

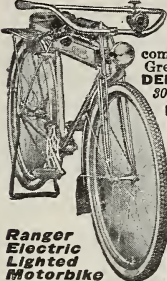
Dixie Beekeeper

This monthly publication deals with beekeeping and Dixie for beekeeping.

A sample copy free

J. J. Wilder, Waycross, Ga.

FACTORY-TO-RIDER SAVES YOU MONEY



Ranger
Electric
Lighted
Motorbike

Buy direct and save \$10 to \$20 on a bicycle. **RANGER BICYCLES** now come in 44 styles, colors and sizes. Greatly improved; prices reduced. **WE DELIVER FREE** to you on approval and 30 days trial, actual riding test.

EASY PAYMENTS if desired, at a small advance over our Special Factory-to-Rider cash prices.

TIRES, lamps, wheels, parts and supplies at *half usual prices*.

Do not buy a bicycle, tires, or sundries until you get our big free Ranger catalog, low prices and liberal terms. A postal brings every thing.

MEAD CYCLE COMPANY
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GOOD SEEDS



GOOD AS CAN BE GROWN
Prices Below All Others

I will give a lot of new sorts free with every order I fill. Buy and test. Return if not O. K.—money refunded.

Big Catalog FREE

Over 700 illustrations of vegetables and flowers. Send yours and your neighbors' addresses.
R. H. SHUMWAY, Rockford, Ill.

Cheap Power NOVELTY Quick Auto-Pulley Power

DO ALL YOUR POWER FREE WORK TEN DAYS

Novelty Belt Power Attachment Makes Your Car a 10 to 15 Horse Portable Farm Engine

Grind Your Feed
Run Grain Elevator
Pump Your Water
Run Wood Saw

Simple, practical, economical. Attach in 3 minutes. Nothing to get out of order—cannot injure car or cause tire wear. Easy to operate—will last a lifetime—worth several times its price in emergencies.

SEND NO MONEY



We will send pulley to fit your car. Use it 10 days—but to every test.

After trial if you are entirely satisfied, send us \$6.50; otherwise return at our expense. Hundreds of users—no red tape. Simply send us name of car or send for free circulars.

We can supply special pulley to change your present hand machines into power machines.

Novelty Mfg. Co., Dept. Z Abingdon, Ill.

**BANKING
BY MAIL
AT 4%**

THERE is no red tape or difficulty of any kind connected with our system of Banking by Mail at 4 per cent compound interest.

Write today for booklet and full information concerning this Safe, Convenient and Profitable plan.

THE SAVINGS DEPOSIT BANK CO.

A. T. SPITZER, Pres.

E. R. ROOT, Vice Pres. E. B. SPITZER, Cash.

MEDINA, OHIO

Dr. J. H. Black, Ft. Deposit, Ala.

Breeder of

Three-band Italian Queens

These queens are as good as can be had. They must be purely mated. Safe arrival guaranteed in United States and Canada.

Untested queens - - - \$1.25; 12, \$12.00
Select untested queens 1.50; 12, 15.00

Dr. J. H. Black, Ft. Deposit, Ala.

Bee Supplies

FALCON LINE
BEST GOODS MADE

Get our big discount
sheet before buying

C. C. Clemons Bee Supply Co
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AT SIOUX CITY, IOWA

**YOU HAVE A MARKET
FOR YOUR HONEY AND
BEESWAX**

WESTERN HONEY PRODUCERS
SIOUX CITY, IOWA

Address Dept. C

When you have honey for
sale send sample and state
the price you want delivered
here.

You have a stock of Lewis
Beeware at your command.

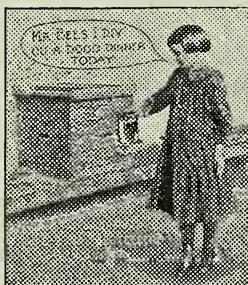
Send list of your wants and
lowest prices will be quoted
at once.

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QUALITY AND SERVICE

Now is the time to order your season's supply of Bee Material so as to have them ready for the honey flow. For lack of hives and other goods, you cannot afford to let your bees fly away. *Bees are valuable.* We have every thing required for practical beekeeping. Our goods for Ideal of quality, quality of workmanship. Our 1920 catalog is now ready to send out; send for one. It is full of good stuff.

AUGUST LOTZ COMPANY -- BOYD, WISCONSIN



THE E-Z-WAY BEE-FEEDER

will save your time and save your bees,
and will satisfy an old established need

A few pounds of sugar syrup will save your weak colonies, they will be worth many dollars to you next season, don't lose one, when it is so E-Z to feed and save them with the E-Z-WAY BEE FEEDER. We send attachments for 3 hives, instructions for using, Feeding, and making the syrup with each feeder. The spring will soon be here; don't delay, order at once, at our risk, 30 days' trial, money back if not satisfied. Price \$1, or six for \$5, postpaid. Remit by Money Order, Cash, or Stamps, to

THE HOLDEN MANUFACTURING COMPANY
CLARKSBURG, W. VA.



Established 1885

Write us for catalog.

BEEKEEPERS' SUPPLIES

The Kind You Want and The Kind .
That Bees Need.

We have a good assortment in stock of bee supplies that are mostly needed in every apiary. The A. I. Root Co's brand. Let us hear from you; information given to all inquiries. Beeswax wanted for supplies or cash.

John Nebel & Son Supply Co.
High Hill, Montgomery Co., Mo.

World's Best Roofing

at Factory Prices

"Reo" Cluster Metal Shingles, V-Crimp, Corrugated, Standing Seam, Painted or Galvanized Roofings, Siding, Wallboard, Paints, etc., direct to you at Rock-Bottom Factory Prices. Positively greatest offer ever made.

Edwards "Reo" Metal Shingles

cost less; outlast three ordinary roofs. No painting or repairs. Guaranteed rot, fire, rust, lightning proof.

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Get our wonderfully low prices and free samples. We sell direct to you and save you all in-between dealer's profits. Ask for Book No. 433



LOW PRICED GARAGES

Lowest prices on Ready-Made Fire-Proof Steel Garages. Set up any place. Send postal for Garage Book, showing styles.

THE EDWARDS MFG. CO.,
433-435 Pike St., Cincinnati, O.

FREE

Samples & Roofing Book

MASON BEE SUPPLY COMPANY

MECHANIC FALLS, MAINE

From 1897 to 1920 the Northeastern
Branch of The A. I. Root Company

Prompt and Efficient Service
BECAUSE—Only Root's Goods are sold.
It is a business with us—not a side line.
Eight mails daily.
Two lines of railway.
If you have not received 1920 catalog send name at once.

BEES

We furnish full colonies of Italian bees in double-walled hives, single-walled hives, shipping-boxes, and three-frame nucleus colonies.

**I. J. STRINGHAM, GLEN COVE,
Nassau Co., N. Y.**

TREES and SHRUBS

Of Highest Quality at living prices. Pleasing, prompt service. No money with order. We pay the freight and guarantee satisfaction. If interested, ask for 1920 Catalog. It explains.

THE PROGRESS NURSERIES

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TROY, OHIO

NEW ENGLAND

BEEKEEPERS will find a complete stock of up-to-date supplies here. Remember we are in the shipping center of New England: If you do not have a 1920 catalog send for one at once.

H. H. Jepson, 132 Friend St., Boston, Mass.

"Best" Hand Lantern



A powerful portable lamp, giving a 300 candle power pure white light. Just what the farmer, dairyman, stockman, etc. needs. Safe—Reliable—Economical—Absolutely Rain, Storm and Bug proof. Burns either gasoline or kerosene. Light in weight. Agents wanted. Big Profits. Write for Catalog.

THE BEST LIGHT CO.
306 E. 5th St., Canton, O.

"Falcon"

I am a "falcon" bee



I live in a "Falcon" hive.
I am gentle and contented. I love to work in my home because everything is just as I like it.

The hive body is well constructed; that is why your honey crop is always plentiful.

Our queen is a "Falcon" queen—she is a three-banded Italian of pure healthy stock.

We all agree that our colony is successful, but so are all the "Falcon" hives in our apiary.

The other bees tell me when we meet in the fields.

Send at once for a "Falcon" queen, a hive, or any bee-supplies you need. Don't delay. Spring will soon be here.

"Falcon" bees and supplies always give the best results.

I know, because—I am a "Falcon" bee.

W. T. FALCONER MFG. COMPANY, FALCONER, NEW YORK

"where the best beehives come from."

QUEENS

FINE ITALIAN QUEENS FROM

SELECTED BRED-UP STOCK

Pure mating, safe arrival,
and satisfaction guaranteed.
Now booking orders for June
delivery at following prices:

	1	12	100
Untested . . .	\$1.35	\$15.00	\$110.00
Select Untested	1.75	18.00	150.00
Tested	2.50	24.00	200.00

A few more
PACKAGE BEES
for late May and early
June delivery.

E. A. HARRIS, ALBANY, ALA.

QUEENS

FROM SELECT BREEDING

Twenty Years of Experimenting. We
have nothing but the very best.

3-Band Only

Price Cash With Order

Before July 1st

Untested	\$2.00
Selected	2.25
Tested	3.00
Selected	3.50

Orders filled in rotation.
Write for prices in large
quantities.

Did you get what you were looking
for when you bought your last year's
Queens? If not, try one that will
please you. My queens are reared on
a new system, large and prolific, sur-
passed by none but superior to many.

F. M. RUSSELL

ROXBURY, OHIO R. F. D. No. 2

DOLL SAYS

don't invite Disappointments by delay in ordering your Honey Containers. Make sure of having all the Cans and Bottles you will need, by ordering them NOW. I am splendidly prepared to fill all orders for Friction Top Cans of 3 lbs. to 10 lbs. capacity—5-gallon Square Cans—and ½-lb. to 3-lb. white flint glass Screw Top Honey Bottles. Standard-grade goods, at prices that will interest you.

AN EASY WAY TO SAVE MONEY

You can save 15 per cent to 20 per cent on the cost of your Honey Cans and Bottles this year, by ordering them from DOLL—and instructing us to ship direct from factory to you.

I am also ready to make prompt shipments of anything wanted in the way of White Pine Hives, supers, extractors, Foundation, and other Supplies—none better to be had in either Style, Quality or Construction.

BE ready when the Honey begins to flow, by GETTING ready NOW.

Be sure to get my price quotations
before ordering this year's Supplies.

P. J. DOLL BEE SUPPLY CO.

NICOLLET ISLAND

MINNEAPOLIS, MINN.

\$30,000 WORTH OF Bee Supplies



All boxed ready to ship at once, 275,000 Hoffman frames; also Jumbo and Shallow frames, of all kinds, 100 and 200 in a box. Big stock of Sections, and fine polished Dovetailed Hives and Supers. I can give you big bargains. Send for a new price list. I can save you money.

Will take Beeswax in Trade at Highest Market Price.

Charles Mondeng

146 Newton Ave., N. Minneapolis, Minn.

Beeswax Wanted

In big and small shipments, to keep Buck's Weed-process foundation factory going. We have greatly increased the capacity of our plant for 1920. We are paying higher prices than ever for wax. We work wax for cash or on shares.

Root's Bee-supplies

Big stock, wholesale and retail. - Big catalog free.

Carl F. Buck

The Comb-foundation Specialist
Augusta, Kansas

Established 1899

HIVES! SMOKERS! FOUNDATION!

MR. BEEKEEPER

Hives! You can't buy any better hives than those we manufacture. Genuine Root Goods. You will need new hives this year to take care of your increase. You may need them soon.

Smokers! You know the Root Company is the leader in the manufacture of smokers. We admit there are no better smokers made than **Root Smokers**.

Foundation! We have the foundation. New Process but good old Root Quality. You can't start your season right without foundation. Spring is here and you must use some new foundation. Get busy. Send in your order now. Everything considered, it pays to buy the best—so

BUY ROOT GOODS

THE A. I. ROOT CO. OF IOWA

COUNCIL BLUFFS, IOWA

QUEENS

QUEENS

I have a few very fine
Breeding Queens,
worth very much
more than the price
asked. Other grades
:- :- in season :- :-

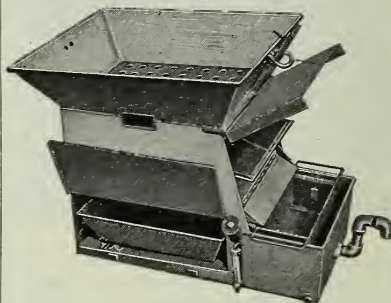
Untested - - - \$1.50
Tested - - - 2.50
Select Tested - - 3.50
Breeders - - - 5.00
With nucleus, bees 10.00

Address

W. H. LAWS

BEEVILLE BEE COUNTY TEXAS

THE SEVERIN Melter & Separator COMBINED



will take care of those cappings you have been keeping around in the way. A sticky mess. Clean them up as you go and start each morning with everything out of the way. Think of having your wax ready for market direct from the uncapping-knife and the amount of honey saved over the old way has surprised many. The only melter of its kind on the market. Four improvements for 1920. Write for description today.

F. J. Severin Box 145 Imperial, Calif.

THAGARD'S ITALIAN QUEENS

I am booking orders for April to July deliveries. My Three-band queens are bred from imported stock; they are hardy, prolific, gentle, disease-resisting, and honey-producers.

Untested Queens	\$1.50	6, \$7.50	12, \$13.50
Select Untested Queens.....	\$1.75	6, \$9.00	12, \$16.00

I guarantee pure mating, safe arrival, and perfect satisfaction. Circular free.

V. R. THAGARD :- :- GREENVILLE, ALABAMA

BEEES AND QUEENS

We have made arrangements with a reliable breeder in Santa Clara County to supply our orders for bees and queens at popular prices after April 1st. Queens are bred from a queen of the celebrated Pritchard Stock. We have evidence to show that bees from such stock gather larger yields of honey. Send us your inquiries.

BEE HIVES AND SUPPLIES

If you appreciate high quality goods accurately made at very modest prices considering present lumber values, send us your orders and inquiries and you will not be disappointed.

Comb Foundation which excels and always gives entire satisfaction is furnished by

THE A. I. ROOT COMPANY
OF CALIFORNIA

52-54 MAIN ST
SAN FRANCISCO, CALIF.

1824 EAST 15th ST.
LOS ANGELES, CALIF.

Highest Prices Paid for Beeswax

HERE THEY ARE, MR. BEEKEEPER, AT NEWARK

Wayne County, New York, ready to answer your call, the best of everything!!

Just Read This List

Lewis Beeware, Sections, Shipping Cases, Frames, Hives, Hershiser Wax Press, and other supplies.

Dadant's Unexcelled Foundation, all standard weights and sizes. Also the Electric Wire Imbedder.

Bingham Uncapping Knives, including steam-heated with oil stoves and generators.

Bingham Smokers, all sizes, with genuine leather bellows.

Root's Extractors, all sizes of hand and power Machines.

Bee Books written by all leading authors in bee-dom.

All Sizes of Friction-top Pails and also 60-pound Cans, new and second-hand. Also Cement-coated Nails for nailing beehives and supplies.

All-sized Spools of Tinned Wire, Bee Brushes, Feeders, Queen-rearing Cages, Bee Gloves, Capping Melters, and all practical supplies you will need.

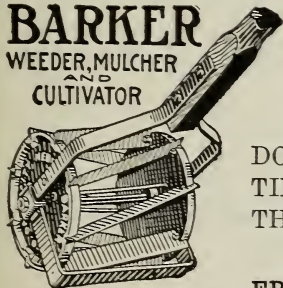
A Market for your Honey or Wax, and a plant to render your Old Combs and Cappings.

Over 1,000 Beekeepers took advantage of this Service Station at Newark in 1919, for the first time. Now *all together* for a greater 1920.

New Catalog Free, and Our Discounts Will Save You Money. Address

The Deroy Taylor Co., :- Newark, Wayne Co., New York

BARKER
WEEDER, MULCHER
AND
CULTIVATOR



Weeds and Mulches In One Operation

DOES BETTER WORK THAN A HOE—TEN TIMES AS FAST—SAVES TIME AND LABOR, THE TWO BIG EXPENSE ITEMS—EASY TO OPERATE.

FREE—Illustrated Book and Factory-to-User Offer

We want every garden grower to know just how this marvelous machine will make his work easier and increase his profits. So we have prepared a book showing photographs of it at work and fully describing its principle. Explains how steel blades, revolving against a stationary knife (like a lawn mower) destroy the weeds and at the same time break up the crust and clods and pulverize the surface into a level, moisture-retaining mulch.

"Best Weed Killer Ever Used"

LEAF GUARDS—The Barker gets close to the plants. Cuts runners. Has leaf guards; also easily attached shovels for deeper cultivation—*making three garden tools in one.* A boy can use it. Five sizes. Send today for book, free and postpaid.

BARKER
MFG. CO.
Dept. 10

DAVID CITY, NEB.

Gentlemen. — Send me
postpaid your free book and
Factory-to-User Offer.

BARKER MANUFACTURING CO.

Dept. 10

David City, Nebraska

Name _____

State _____

Town _____

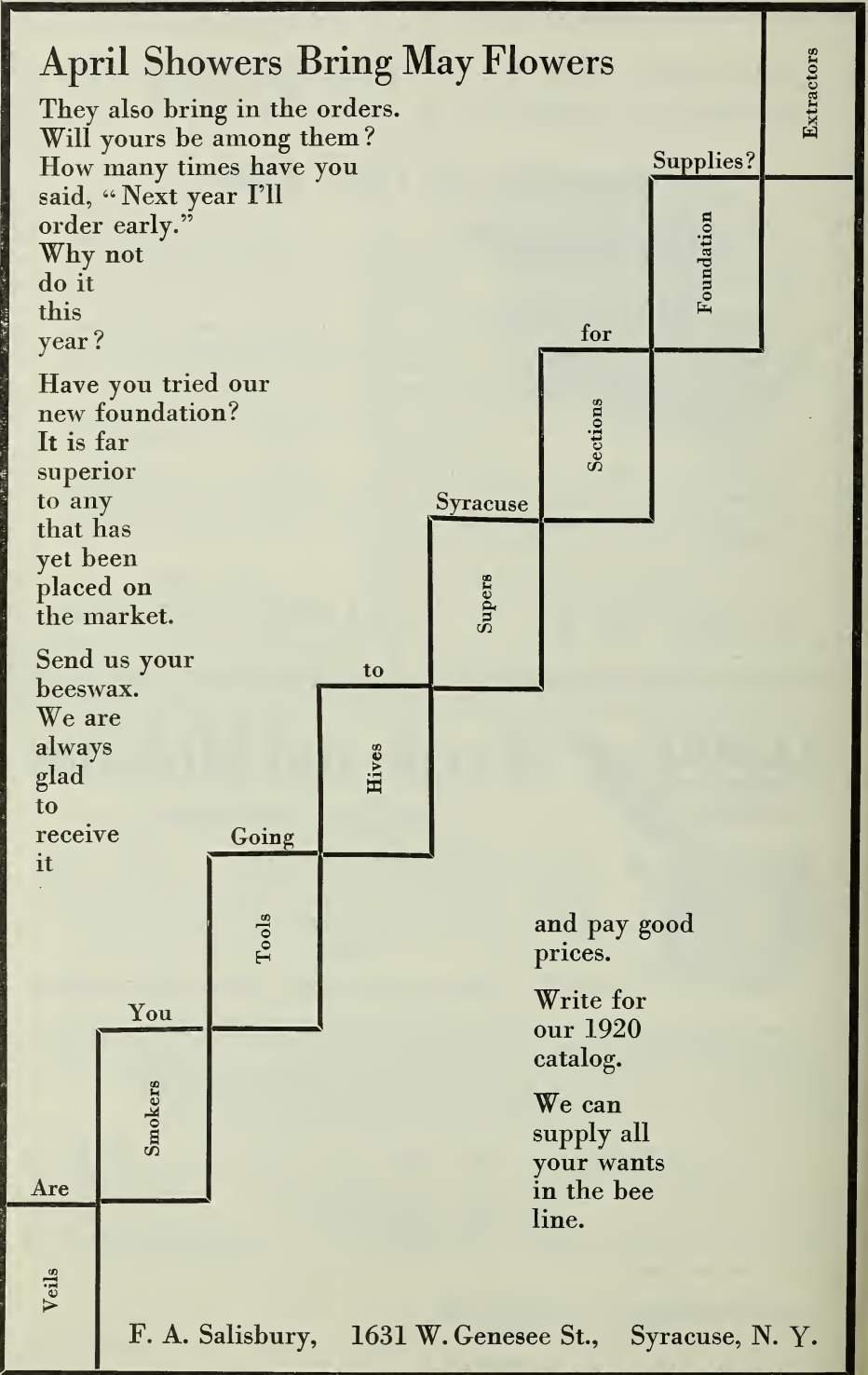
R. R. No. _____ Box _____

April Showers Bring May Flowers

They also bring in the orders.
Will yours be among them?
How many times have you
said, "Next year I'll
order early."
Why not
do it
this
year?

Have you tried our
new foundation?
It is far
superior
to any
that has
yet been
placed on
the market.

Send us your
beeswax.
We are
always
glad
to
receive
it



and pay good
prices.

Write for
our 1920
catalog.

We can
supply all
your wants
in the bee
line.

F. A. Salisbury, 1631 W. Genesee St., Syracuse, N. Y.

QUEENS OF QUALITY

FARMER'S QUEENS SPEAK FOR THEMSELVES.

Mr. Beekeeper, why not get a good queen while you are buying? Farmer's queens produce workers that fill the supers quick with honey that is most delicious to eat. They are bred for honey production strictly. Shipping season is here; now is your time to head your colonies with a good queen; one that will keep the hive chock-full of bees at all times, makes the biggest yields of honey, sting less and look the prettiest. Our strain of Italians will go a long distance after nectar; in a high degree they are very resistant to disease, gentle and beautiful, not given to swarming, hardy, long-lived. We breed from imported stock from Italy, the very best obtainable for honey-gathering; they are known thruout the world; they don't need any recommendation.

PRICES FROM APRIL TO JULY:

	1	6	12	100
Untested	\$1.50	\$7.50	\$13.50	\$1.00 each
Select untested	1.75	9.00	16.50	1.25 each
Tested	2.50	13.00	24.50	2.00 each
Select tested	4.00	22.00	41.50	3.35 each

Guarantee? You take no risk when you buy our queens. We guarantee them to reach you safely, to be purely mated, and we leave the word satisfaction entirely to purchaser; he is the sole judge. Why we do this is because we know what we are going to send out. If they don't prove up to your satisfaction, return them and your money will be refunded. Shipments made on time. Reference to our standing: Bank of Ramer, Ramer, Ala.

The Farmer Apiaries . . . Ramer, Alabama

"Where the Good Queens come from"

QUEENS, PROVEN QUEENS

There's no excuse for having inferior queens in those colonies from which you are expecting that bumper honey crop, which you might not get for the sake of taking chances. It takes the same expensive equipment and labor to care for the colony that pays a dividend and the one that does not. A few dollars spent for good queens is the best insurance you can carry for your business, whether you are farmer beekeeper or in the commercial class. None of my queens are "baby nuclei" reared; consider what this may mean to you. Remember what an authority and beekeeper Mr. Doolittle was and that he spent the better part of his life in breeding and improving his stock of Italians, and I am breeding from his stock. Prices are as follows, terms strictly cash, one-fourth with order, balance before shipping.

	Before July 1st			After July 1st		
	1	6	12	1	6	12
Untested	\$2.00	\$8.50	\$15.00	\$1.25	\$6.50	\$11.50
Select Untested	2.25	9.50	18.00	1.50	7.50	13.00
Tested	3.00	16.50	30.00	2.00	10.00	18.50
Select tested	3.50	19.50	35.00	2.75	15.00	27.00

Larger quantities for less, in proportion to number and time wanted. No nuclei except to accompany tested or select tested queens.

JENSEN'S APIARIES

LOWNDES COUNTY

PENN, MISSISSIPPI

INDIANOLA APIARY

Will furnish 3-banded Italian Bees and Queens as follows: Untested Queens, \$1.00; Tested, \$1.50. Nucleus, \$2 per frame, queen extra.

J.W. SHERMAN, VALDOSTA, GA.

BE FOREHANDED

Mr. Beekeeper and anticipate your needs for the coming season and order early. Root's goods in stock at factory prices. Send for 1920 catalog.

F. D. Manchester R. D. No. 2 Middlebury, Vt.

Forehand's Three Bands

THE THRIFTY KIND

We have been breeding these queens for the market for over a quarter of a century. They are bred from the imported Italians, but after years of select breeding we have brightened the color and retained the good qualities of their mothers.

After years of select breeding we have built up a strain of bees that are surpassed by none but superior to many. Our queens are thrifty, hardy, gentle, and beautiful.

PRICES

After April 1, to July 1

Kind	1	6	12	100, each
Untested	\$1.50	\$7.50	\$13.50	\$1.00
Select Untested	1.75	9.00	16.50	1.25
Tested	2.50	13.00	24.50	2.00
Select Tested..	4.00	22.00	41.50	3.35

Pound Bees from April 15 to June 30

Size	1	25 or more
One-pound package.....	\$3.00	\$2.75
Two-pound package.....	5.00	4.60
Three-pound package.....	7.00	6.45

Add the price of the queen wanted.

We guarantee pure mating, safe arrival and satisfaction.

W.J. FOREHAND & SONS -:- FORT DEPOSIT, ALA.
THE BEE MEN

QUEENS Bees by the Pound QUEENS

Booking orders now with one-fourth down, balance just before shipping. We have for several seasons shipped thousands of pounds of bees all over the United States and Canada.

From Wisconsin: "Last year when my old-time beekeeping friends heard that I had bought bees from a man in Texas they called me a fool; but now I have more bees and more honey than any man in Green county. It is the talk of this part of the woods." (Same party has in his order again for over a thousand dollars' worth for spring shipping.)

From West Virginia: "The State Apiarist pronounced my queen one of the finest queens he ever saw. To say I am well pleased would be to put it

mildly. Will want more bees and queens in the spring."

Guarantee shipment to be made on time. Free circular explains, also gives prices on bees by Parcel Post, Nuclei, etc.

Prices f. o. b. Here, by Express.

1-lb. pkg. bees,	\$2.40; 25 or more...	\$2.16
2-lb. pkg. bees,	4.25; 25 or more...	3.83
3-lb. pkg. bees,	6.25; 25 or more...	5.62

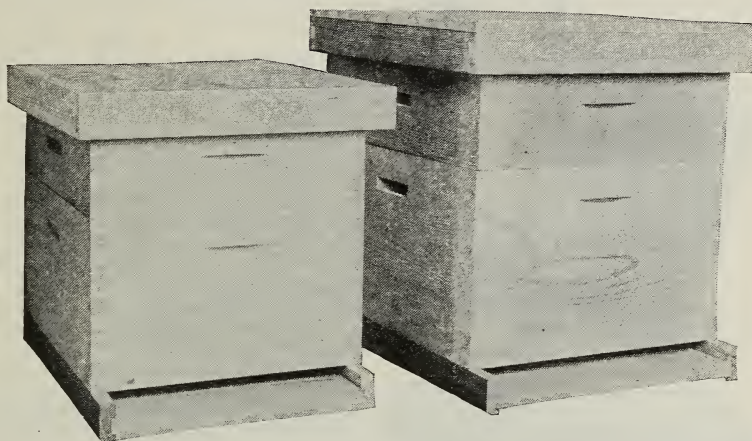
Queens.

Untested, \$1.50 each; 25 or more....	\$1.35
Tested, \$2.50 each; 25 or more.....	2.25
Select tested, each.....	3.00

Add price of queen wanted when ordering bees.

NUECES COUNTY APIARIES -:- CALLEN, TEXAS
E. B. AULT, Prop.

Modified Dadant Hive



The Modified Dadant Hive has 40 per cent larger Brood Comb Area than the Ten-Frame Langstroth Hive.

A glance at this illustration shows you why the MODIFIED DADANT hive should be in your apiary. See the large size compared with the 10-frame "Standard!" Features embodied in this hive are:

1. A deep frame.
2. A large brood-chamber in one story.
3. Ample ventilation by wide frame spacing.
4. Excellence in wintering.
5. Swarming easily controlled.

Modified Dadant Hive Features

1. Eleven frames, Langstroth length, Quinby depth.
2. Frames end-spaced $1\frac{1}{2}$ inches for swarm control.
3. Extracting frames $6\frac{1}{4}$ inches deep.
4. Dovetailed body, regular reversible bottom and metal roof cover with inner cover.
5. Langstroth "standard" equipment easily used with it.

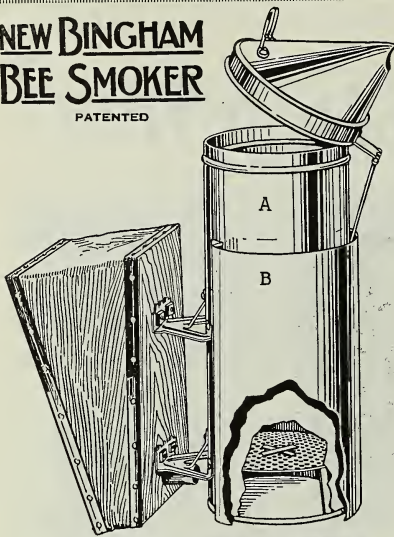
*Made by The G. B. Lewis Company; sold by
distributors of Lewis "Beeware!"*

For free booklet write either to G. B. Lewis Co., Watertown, Wis.,
or to

Dadant & Sons, Hamilton, Illinois

NEW BINGHAM BEE SMOKER

PATENTED



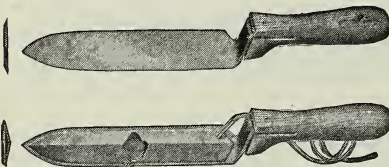
The Bingham Bee Smoker has been on the market over forty years and is the standard in this and many foreign countries. It is the all-important tool of the most extensive honey producers in the World. It is now made in five sizes.

	Size of stove inches	weight lbs.	shipping price
Big Smoke, with shield	4 x10	3	\$2.50
Big Smoke, no shield.	4 x10	3	2.00
Smoke Engine	4 x7	2 1/4	1.50
Doctor	3 1/2 x7	2	1.15
Conqueror	3 x7	1 1/4	1.00
Little Wonder	3 x5 1/2	1 1/2	.80
Smoke Engine or Doctor, in copper,			\$1.00 extra.

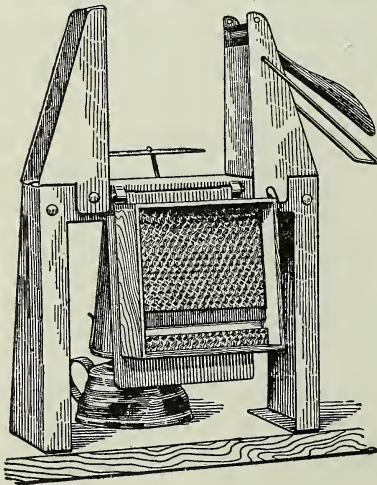
The Big Smoke has just been produced in response to a demand for a larger-size smoker, one that will hold more fuel, require filling less often, from extensive bee handlers. The Shield, designated by the letter B in the cut above, is designed as a matter of protection from the hot fire pot. Many hold the smoker by the bellows between the knees when at work, and the shield will prevent burning of the trousers or one's legs.



THUMB REST



The Genuine Bingham Honey Uncapping Knife is manufactured by us here at Grand Rapids and is made of the finest quality steel. These thin-bladed knives, as furnished by Mr. Bingham, gave the best of satisfaction, as the old timers will remember. Our Perfect Grip Cold Handle is one of the improvements.



The Woodman Section Fixer, a combined section press and foundation fastener, of pressed steel construction, forms comb-honey sections and puts in top and bottom foundation starters, all at one handling. It is the finest equipment for this work on the market.

TIN HONEY PACKAGES.

2	lb. Friction top cans, cases of 24
2	lb. Friction top cans, crates of 612
2 1/2	lb. Friction top cans, cases of 24
2 1/2	lb. Friction top cans, crates of 450
5	lb. Friction top pails, cases of 12
5	lb. Friction top pails, crates of 100
5	lb. Friction top pails, crates of 203
10	lb. Friction top pails, cases of 6
10	lb. Friction top pails, crates of 113

Special Prices.

Crates of 100 five-pound pails.	\$ 8.00
Crates of 200 five-pound pails.	15.00
Crates of 100 ten-pound pails.	12.50

Ask for quotations on 60-pound cans.

Shipments made from Michigan, Ohio, Illinois, and Maryland factories.

A. G. Woodman Co., Grand Rapids, Mich., U. S. A.

THE BIG HIVE

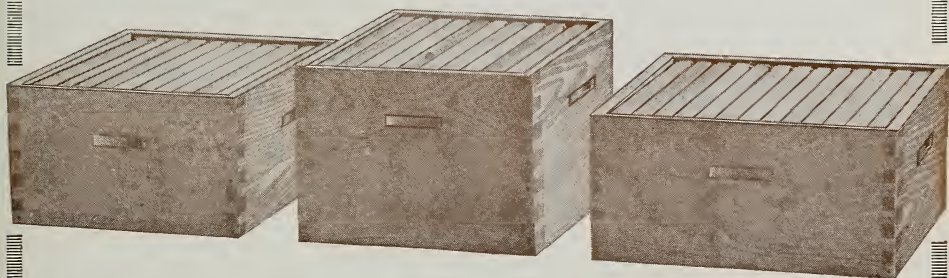
HOW LARGE A HIVE? Beekeepers make very different answers. No one hive can serve the needs of all beekeepers and all beekeeping conditions. So some beekeepers still swear by the Langstroth 8-frame hive, and tell you why it is best for their locality and their honey-flow. They won't have any other. Very many more will say the 10-frame Langstroth is just right. In these later days, there are excellent beekeepers, too, who declare for a bigger hive—they want a deeper hive than the Langstroth with deeper frames, or they want a hive big enough to hold 12 or 13 of the standard Langstroth frames.

THE JUMBO HIVE.

To meet the requirements of beekeepers who have wished the bigger hives, this Company has been manufacturing the "Jumbo" hive for more than 20 years. It is a deep hive, being 11 13/16 inches in depth, and the frames are 11 1/4 inches deep, or 2 1/8 inches deeper than the regular Langstroth. Otherwise, it is standard Langstroth. It will take 10 L. supers, covers, bottom-boards, etc., without any change whatever. It has 3,400 square inches of comb capacity as compared with 2,700 in the standard 10-frame hive. It provides completely for the larger brood-chamber, better swarm control, good ventilation, and excellent wintering features, claimed for the deep hive by those who prefer it.

THE SQUARE JUMBO HIVE—13 FRAMES.

For those wanting an even larger deep hive than the Jumbo, we supply the Square Jumbo. The depth is the same as the regular Jumbo, but it has 13 frames.



The Standard 10-Frame Hive.

The Jumbo.

The Root Square Hive.

This big Jumbo has a comb capacity of 4,400 sq. ins. with 13 frames (or 63% more than the 10-frame L. hive) and 4,080 with 12 frames and the 1 1/2-in. spacing. It makes a square hive—easy to manipulate because it fits the bottom-board however it is faced, and the supers and covers are more easily placed. This hive meets the wants of the advocates of the big, big hive—it is deep and wide both. A shallow-depth super is furnished with this hive.

THE ROOT SQUARE HIVE—13 L. FRAMES.

We have now been manufacturing this large hive for a year. It meets the needs of many progressive beekeepers who want a large brood-chamber for building up enormous colonies for the honey-flow, and yet permits the use of the standard L. frames which so many beekeepers have on hand. The single brood-chamber holds 13 frames with 1 1/2-in. spacing, giving a comb capacity of 3,480 sq. ins. (30% more than the standard 10-frame Langstroth); or it will hold 12 Hoffman or metal-spaced frames, giving 1 1/2-in. spacing, with one-fifth more comb capacity than the 10-frame hive. Equipment for 1 1/2-in. spacing at the same price as our regular 1 3/8-in. spaced frames. It has the advantages of easy manipulation due to being square—fits the bottom-board however turned, thus permitting placing combs parallel to the entrance for winters—and supers and covers are easy to place in position. This hive gives a large brood-chamber and either the 1 3/8- or 1 1/2-in. spacing, while it requires only the regular L. frames so generally owned by beekeepers. Shallow extracting supers are regularly furnished with this hive, depth 5 3/8 ins., frames 5 3/8 ins. deep.

Square Jumbo and the Root square (13-fr.) hives furnished at present from Medina only. Write for full description and detailed prices.

THE A. I. ROOT COMPANY, MEDINA, O.

Constructive Criticism

Has been our watchword in office, factory, apiaries, and shipping room since we started manufacturing DADANT'S FOUNDATION over forty years ago.

Any possible improvement in manufacture, packing, etc., suggested to us has been painstakingly investigated and, if desirable, acted upon. That is why

DADANT'S FOUNDATION

is recognized by its thousands of satisfied users as most desirable and used by them in their apiaries exclusively.

They are assured of a standardly uniform product made as nearly perfect as is possible by human efforts.

DADANT'S FOUNDATION is the result of over forty years' concentrated effort and accumulated experience.

Every inch, every pound, every ton, equal to any sample we have ever sent out.

Ask your dealer for DADANT'S FOUNDATION. If he hasn't it write to us.

Catalog of Bee Supplies, prices on working wax into foundation, and our prices on beeswax for the asking.

Dadant & Sons, Hamilton, Illinois